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COMPONENTSOURCE BUYS FLASHLINE MARKETPLACE

Vendors forge alliance to help push, improve corporate reuse initiatives

BY DAVID RUBINSTEIN

Flashline Inc. wanted to focus on its core competency—its Component Manager Enterprise Edition. ComponentSource was looking to expand the reach and breadth of its commercial off-the-shelf (COTS) component marketplace.

The two companies on April 9 announced that ComponentSource was acquiring the Flashline component marketplace for an undisclosed sum: “Money changed hands and neither side is

happy with the amount,” joked Flashline’s CEO Charles Stack. “This is a true ‘coopetition,’” said ComponentSource CEO Sam Patterson.



ComponentSource is growing its COTS offerings, says Patterson.

According to Stack, CMEE helps users define best practices, and store and document software assets, and it links to the component repository now owned by ComponentSource, which expands the numbers of those components available to Flashline customers.

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Sun Faces Challenges With Java

BY YVONNE L. LEE

A month before JavaOne, Sun Microsystems Inc.’s annual developer conference, the talk has moved away from the familiar “How will Java compete against Microsoft’s .NET Framework?” to whether Sun continues to be the appropriate standard-bearer for the language and Web services framework, and whether JavaOne continues to represent the interests of the entire Java community.

JavaOne “was all about Java. Now it’s more like a Sun user group,” said Scott Hebner, IBM Corp.’s director of marketing for the WebSphere application server. “I think the Sun presence has become Sun specific more than Java specific.”

The issue arises because IBM and BEA Systems Inc., and not Sun, lead the market

for Java middleware and application servers, according to both analysts and partners.

“I think the lead is going to be a two-horse race for at least a couple of years,” said Rob Hailstone, International Data Corp.’s European software infrastructure research director.

FOR MORE ON JAVA ONE SEE PAGE 10 AND INDUSTRY WATCH PAGE 30

“My bets this year are a little different from last year,” said Sam Patterson, CEO of ComponentSource, an Atlanta-based distributor of software components for .NET and Java. “Last year, I would have said

IBM. This year, it’s BEA.”

The reason these market analysts and partners—as well as financial analysts—view BEA so strongly is that the San Jose company understands the importance of integration, they say.

SoundView Technology Group, in its report “BEA Sys-

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Palm’s Wireless Strategy Leaps Forward

Recent partnerships, new devices focus Palm OS on enterprise

BY EDWARD J. CORREIA

Recent agreements with cell-phone giant Qualcomm Inc. and mobile solutions provider Spontaneous Technology Inc. have helped Palm Inc. assemble an enterprise wireless strategy that one analyst believes gives the company enough clout to bring wireless carriers to the bargaining table, and to help it maintain its market dominance.

In mid-March, Palm (www.palm.com) said it will license Qualcomm’s BREW application delivery system, which is embraced by major carriers, and

is working with Spontaneous to deliver a secure solution for over-the-air synchronization with back-end servers. According to International Data Corp., Palm OS was used in about 75 percent of voice-enabled handheld computers sold in the U.S. in 2002, the most recent data available.

“This allows Palm to stay viable as a major platform and

hopefully buys them time to maintain their position in the marketplace,” said Issac Ro, senior analyst with Aberdeen Group. “Adding the BREW delivery system to Palm OS gets you a seat at the table with carriers, who are trying to sell airtime; BREW helps make selling airtime easier,” and gives Palm a delivery vehicle

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MICROSOFT OPENING CE SOURCE

BY ALAN ZEICHICK

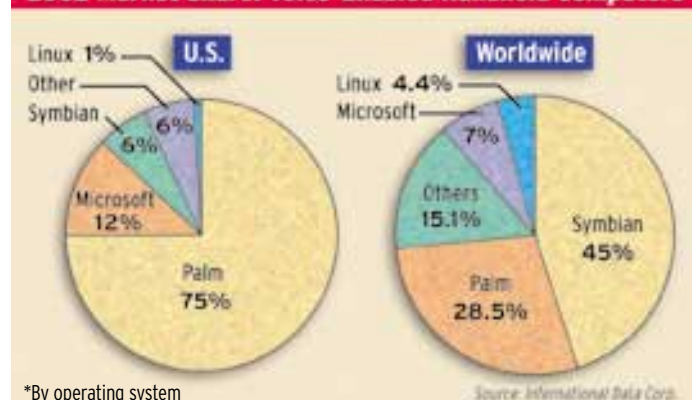
Microsoft Corp. last month extended its Shared Source program for Windows CE, allowing OEMs for the first time to modify the operating system for use in commercial products.

Previously, commercial licensees of the operating system were allowed to examine selected portions of the source code, but were not allowed to make modifications. Under the new Shared Source Premium, Microsoft will provide almost all of the Windows CE codebase, which now can be altered by the licensees.

“Device manufacturers, silicon vendors and systems integrators will be given complete

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Can Rational Remain A Neutral Tools Vendor?

IBM says yes, but analysts, competitors skeptical

BY DAVID RUBINSTEIN

Six months after IBM Corp. acquired Rational Software Corp. for US\$2.1 billion, the fallout still is being felt and assessed throughout the software development industry. While IBM executives insist Rational will remain the platform-independent enterprise software design and testing tools entity it always has been, analysts, customers and partners—especially those working on the Microsoft platform—are said to be wary.

And, while smaller competitors say their phones are ringing with inquiries from IBM Rational customers and others that have yet to choose a tool set, many simply do not offer the enterprise level of scalability, performance and support that IBM's Rational division can provide.



IBM will migrate Rational customers, says Serena's Woodward.

This leaves customers of modeling, SCM and testing tools with two choices—buy Rational, which also will mean buying into IBM at some point (see Lotus and Tivoli, other IBM divisions); or go with a smaller company that might have comparable, less-expensive tools, and that claims it can fill the hole in the independent market, but that isn't quite ready to play in the enterprise space just yet.

Gartner Inc. research analyst Jim Duggan said the acquisition on one level is good for the former Rational and its customers, in that with IBM's resources, the tools will be greatly improved. And of course, there are 2.1 billion other reasons for Rational to believe the deal was a good one. The downside is that Rational, which based much of its success on being a neutral player, now clearly will become part of a company where the goal is to simplify development of Java applications.

"There has been some disquiet" about Rational's takeover by IBM, said Duggan. "So far, the message has been, 'Trust us.'"

RATIONAL AND MICROSOFT

For development shops working in a Java environment, that faith will be easier to show than shops working in the Microsoft .NET environment, Duggan and others believe. "Rational figured out the balancing act between IBM and Microsoft, and balanced it for five or six years," Duggan said. "But it's naive to

think Microsoft won't be uncomfortable with this relationship."

The loss of Rational as a channel for Microsoft sales, according to Duggan, is perhaps a bigger loss than the tools themselves would be. "They can't get the same level of salesmen in a three-piece suit [from other vendors] that Rational could give them." Looking at the individual tools, Duggan said other vendors offer better price and perhaps better performance as well, but the whole suite is what differentiated Rational.

"Rational will try to make the relationship with Microsoft work for the long term, but as a division of IBM, that might be impossible," Duggan said.

At least for now, all is well between IBM's Rational and Microsoft, according to Prashant Sridharan, lead product manager for Visual Studio. "I just met with the Rational guys last week, and it was a mutual love fest. We love each other as partners."

Sridharan said Rational is an important Microsoft partner that will continue to get early access to releases. As for being Microsoft's enterprise efforts, Sridharan said, "Rational is an important partner for a channel into the enterprise but certainly not our only one," he continued, citing Mercury Interactive Corp. as a testing tools company that offers the same entrée into the enterprise as IBM's Rational.

Eric Schurr, formerly Rational's chief marketing officer, and now IBM's vice president of marketing for Rational software products, said IBM's support of non-IBM platforms "allows us to service a broader set of customers. We will continue to support the other platforms."



Rational tools will support other platforms, says IBM's Schurr.

To customers who might have some trepidation about IBM eventually moving them onto an IBM platform, Schurr said, "Have no fear. IBM doesn't force customers to do anything. There is no Trojan horse here. We won't force ClearCase customers to use WebSphere. But when customers see the benefit of the integration, they might want to look at it more closely."

Serena Software Inc. Mark Woodward is among those who believe Rational customers will be moved toward the IBM platform. He noted that IBM already includes ClearCase Lite, a

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Claims Staked to the Executable Internet

Vendors vary in approach to delivering rich Web applications to desktop

BY DAVID RUBINSTEIN

It's been heralded as the executable Internet, dismissed as a return to fat-client computing, and greeted with skepticism by developers fearful of having to learn new skills and development techniques.

Whatever it's called, the use of client software and more powerful desktops to allow users to have a more interactive experience with their applications, even when offline, has grabbed a toehold in the software development space, as businesses come to realize that a better user experience will drive sales from the outside and

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Macromedia	Actionscript (based on ECMAScript)	300KB download, runs on many platforms
Versalent	JavaScript and XML	Microsoft Internet Explorer 5.5
Vultus	JavaScript and XML	Standard Web browser

make integration and communication easier on the inside.

"The technology is still evolving, but folks have staked out a path," according to Forrester Research Inc. analyst John Dalton, who tracks this

market space and will be completing an in-depth analysis later this year. "It's still not as easy as it needs to be."

Dalton noted that about a year ago, he had only one or two applications he could show to

demonstrate what he said are compelling business advantages for companies adopting the technology. Now, there are more than 25 of these applications, he said, adding that while it still is a very small number, the growth

in the past year has been impressive. For businesses, the gains can be dramatic, Dalton claimed. "The Yankee Candle Company saw an increase of 25 percent in basket size because of ease of use of the application."

As Dalton noted, a number of vendors have staked a claim in this space, notably Altio Inc., Curl Corp., Droplets Inc., Laszlo Systems Inc., Versalent Inc. and Vultus Inc. But Macromedia Inc.'s entry has given the space legitimacy, Dalton said.

"Macromedia is a giant that will keep pressure on the space" to grow and mature, he said. "The space needs a giant. It's not about 'skip intro' and goofy animation. That's starting to change." As an example, he cited Macromedia's announcement of Central, a way to deliver and use Flash applications on occasionally connected computers.

Dalton acknowledged there is a lot of resistance to the concept. "The No. 1 question I hear from developers is, 'What new skills do I have to learn?' Managers want to know what are the hidden costs." That depends on the solution. Some companies require you to purchase and install client software, or learn a proprietary programming language. Some are based more on accepted scripting languages as well as XML, HTML and DHTML.

And as for the argument that this is nothing more than fat-client computing revisited, Dalton said the rich-client paradigm "has more smarts in this than the naysayers thought. Just because you have a rich application doesn't mean it has to become a hog. Just the opposite is true.

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Versalent Leverages Browser For Apps With Desktop Feel

BY DAVID RUBINSTEIN

"The whole rich-client universe is a good thing. It's where the world is moving."

Thus spoke Michael Peachey, CEO and co-founder of California start-up Versalent Inc. (www.versalent.com), who has thrown his hat into the burgeoning market for delivering client/server-type applications over the Internet with the release in late March of Versalent Objects 2.0.

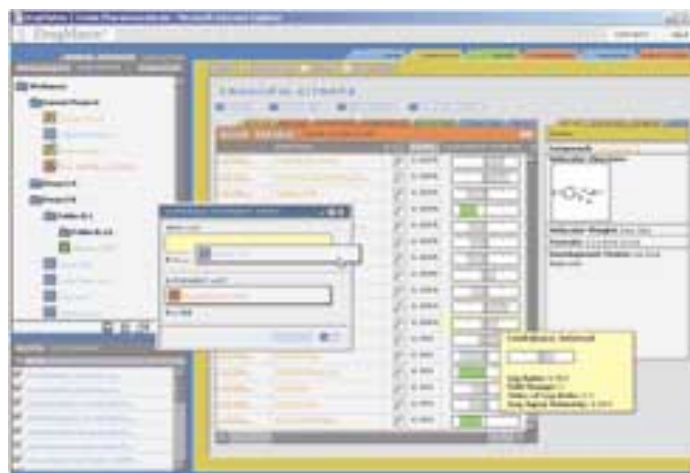
Versalent's approach, though, goes beyond the wizard, widget and applet approach taken by others in the market, Peachey claimed. "The complexity of the application is the key differentiator," he said. "Booking an online reservation to us is a widget. A travel agent would use an app."

Forrester Research Inc. analyst John Dalton said a key part

of Versalent's message is its emphasis on existing browser and Web services standards, showing that "it's something mere mortals can do."

For the creation of Web applications, the company's tools enable developers to create an interface through which users can access multiple Web services from a single screen, using pop-up boxes to get at underlying metadata.

Versalent's application is accessed from a browser and includes all necessary foundation classes—the GUI classes and descriptions of how the application should represent itself on the client—and the application logic. No additional software needs to be downloaded or previously installed on the client; the foundation classes are loaded into the browser when the user



Versalent enables feature-rich applications to be accessed from a browser.

logs on, Peachey explained.

One of the foundation classes is a communication class that each object in the application uses to get its data as XML from a back-end source and caches on the workstation, he explained. The browser then can bring in Web services data feeds as necessary, he added. "It can be faster and deployed more cheaply than client/server, and apps are accessible from

any browser," he said.

Along with Versalent Objects 2.0, which begins at US\$20,000, comes a development environment called Versalent Studio, which runs in the browser and includes an application object modeler, a window for JavaScript and XML authoring, Web services connectivity and a tool for testing the application visually without requiring code to be recompiled, Peachey said. ■

ANITA BORG, PIONEER OF WOMEN IN TECHNOLOGY, DIES

BY YVONNE L. LEE

She wanted to "change the world, simple as that," and in the end, Anita Borg was known as someone who made technology more inclusive of women.

"I want women in general to have an impact on everything, whether it's politics, technology or everything," Borg said in a video dis-



Anita Borg

cussing the Institute for Women and Technology (IWT), a group she founded in 1997.

Borg died April 6 in Sonoma, Calif., after a three-year bout with brain cancer. She was 54.

The IWT (www.iwt.org) was an outgrowth of the Systems e-mail list and information sharing community. Accord-

ing to IWT president Telle Whitney, Sisters originated in 1987 from an impromptu meeting in a restroom at a Digital Equipment Corp. operating-system conference where a dozen women were commiserating about the paucity of female technologists in their companies.

The Sisters group, initially meant for women in systems programming, is now under the auspices of the IWT and counts

more than 2,500 members in various aspects of technology. The group is a collegial forum where women can give each other advice on issues, such as pregnancy and bringing children into the workplace, Whitney said.

In 1994, Borg co-founded the Grace Hopper Celebration of Women in Computing, inspired by the legacy of Navy Rear Adm. Grace Murray Hopper. In 2002 Borg, a self-taught

programmer who went on to earn a doctorate degree in computer science from New York University in 1981, received the Heinz Award for Technology, the Economy and Employment. In 1999, President Clinton appointed Borg to the Commission on the Advancement of Women and Minorities in Science, Engineering and Technology. She was a fellow of the Association for Computing Machinery and on the board of directors of the Computing Research Association. ■

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Eclipse 2.1 Boosts Java Editor, Debugger

BY EDWARD J. CORREIA

The Eclipse open-source development tools framework continues to make strides. With the release of Eclipse 2.1 on April 15, the open-source tools can

now be built for Mac OS X hosts; include an improved Java editor and debugger, code navigation enhancements and user-configurable key bindings; and can create Java apps using the

Ant build environment.

Its main improvements are for Java developers, including a more customizable editor with configurable feedback within hover help, error messages,

warnings and tasks. The editor also now automatically closes parentheses and brackets, completes strings and comments, and offers control over word-wrapping and other Java behavior.

In the debugger, a new "threads and monitors" view reportedly displays which threads are holding locks and which are waiting to acquire locks, enabling developers to find and monitor these situations more easily.

Also new is the "occurrences in file" command, which reportedly can find types, fields, methods or local variables inside the compilation unit or class file. An Ant buildfile tree view with search and an Ant buildfile visual editor provide content assistance, syntax-highlighting and error-reporting for Ant projects.

An upcoming version of Eclipse also will reportedly include an open-source implementation of the Unified Modeling Language 2.0 test profile specification, which according to Mike Norman, CEO of test tools maker Scapa, will boost interoperability of testing tools within the Eclipse framework.

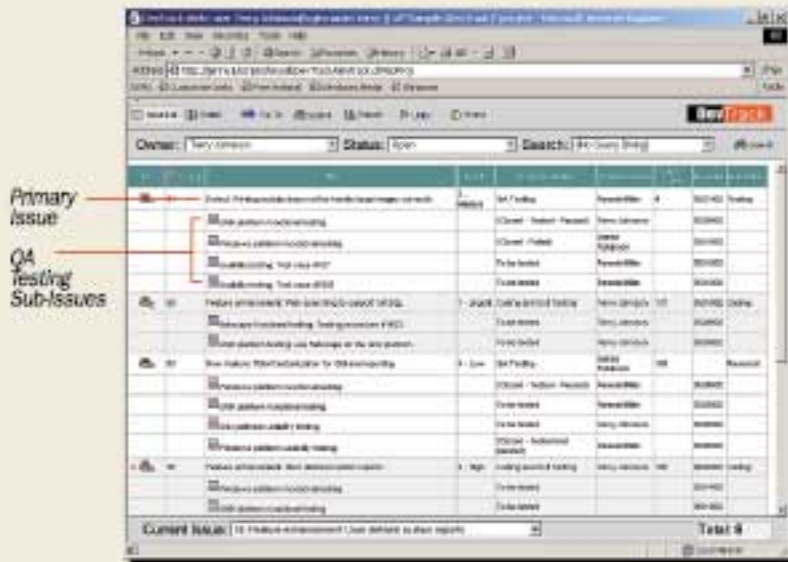
Scapa contributed code that became the foundation of the Eclipse project Hyades announced in January.

Eclipse 2.1 is available now for Linux, Mac OS X, QNX, Unix and Windows, and can be downloaded at www.eclipse.org. ■

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NEW INTEL TOOL CHECKS THREADS

BY EDWARD J. CORREIA

Developers building applications destined for systems based on Intel Corp.'s Pentium 4 and Xeon hyperthreading processors will be getting assistance. Intel last month released Thread Checker 1.0 to help developers locate application bugs that would otherwise be difficult or impossible to find.

"During beta tests, Thread Checker found bugs that developers were not able to find or did not even know existed," claimed Jonathan Khazam, general manager of Intel's software products division, in a statement. Thread Checker reportedly identifies the exact lines of code responsible for threading errors, and eliminates trap placement guesswork. Threading issues are categorized according to severity, and displayed with the source line, variable and call stack information.

Available now for Windows development stations, Thread Checker 1.0 is priced at US\$1,198 and includes Intel's VTune Performance Analyzer. It can be downloaded at www.intel.com/software/products. ■

TimesTen: Performance Times Two

Company claims improved integration broadens applicability

BY EDWARD J. CORREIA

Real-time performance can always be more real. At least that's the thinking of infrastructure software developer TimesTen Inc., which released in late April the TimesTen Real-Time Event Processing System 5.0, its latest high-velocity message-processing system that it claims is up to twice as fast as the previous version, and together with simplified integration is now suitable for a broader range of transactional applications from national security to transportation logistics to online gaming.

According to TimesTen CEO Jim Groff, performance gains are due to a redesigned record-locking scheme and support for as many as 16 processors, twice its previous mark. "We have roughly doubled the maximum throughput from about 45,000 transactions per second to about 90,000." By comparison, Groff claimed that high-end systems from Hewlett-Packard and Sun using conventional software top out at about 15,000 transactions per second.

Such gains, he said, present benefits even to enterprise databases already considered real-time, such as those used in options-market trading and telecommunications. "At the leading edge, Wall Street is looking for commercial off-the-shelf tools and a foundation like ours for next-generation training and market data systems," Groff said. "And in telecom, every phone call, short message, content download or picture sent from one videophone to another [is managed by] a real-time system that figures out how much the call will cost, checks [if the caller] has money to pay, debits the account balance, and alerts the caller when the balance falls below a certain level."

According to Groff, with its increased integration with Oracle databases, TimesTen 5.0 snaps onto such systems as a performance-improving front end without the need for custom code. "TimesTen can take tables and subset tables from Oracle, pull them in and use them as the real-time operating environment. When it comes time to update the data and complete the transaction, TimesTen can transparently push that through to the back-end Oracle data-

base. That used to require the developer to write code, but is now fully transparent.

TimesTen (www.timesten.com) got its start as an embed-

ded application environment inside network equipment, where according to Groff, "applications cannot fail, and high-transaction rates and high avail-

ability are critical." Over time, the product has evolved to include integrations with enterprise databases. Also new is support for Linux on Itanium and

new predeveloped failover and recovery policies.

TimesTen Real-Time Event Processing System 5.0 is available now for Linux, Unix and Windows and permits development in C/C++, Java and SQL. Pricing typically starts at around US\$50,000 for a server with up to four processors, Groff said. ■



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Teamstudio Analyzer Lays Down Java Law

BY YVONNE L. LEE

Lotus Notes and Domino tools maker Teamstudio Inc. is continuing its move into Java with a new version of Analyzer for Java that the company claims automatically corrects common errors.

"About six months ago, we released our first tool for the Java development community because the Lotus Notes development community is being told the next place for you to go is WebSphere," explained CEO Nigel Cheshire.

Teamstudio Analyzer for Java will work with a number of IDEs, according to Cheshire, including Borland's JBuilder, IBM's Eclipse and WebSphere Studio, Oracle's JDeveloper, and Sun's NetBeans and Sun ONE Studio.

The Beverly, Mass.-based company (www.teamstudio.com) plans to build other Java tools in the Java space as it works with existing customers who are moving to Java, and attempts to gain other customers who program in Java.

"We will be continuing on that path with building out a product suite just as we have done on the Notes and Domino side," Cheshire said.

Analyzer for Java version 3, set to ship at the end of May with an introductory

price of US\$195 per seat, will not simply point out errors as the previous versions did, but will attempt to fix some, such as requiring braces around a while statement even when there is only one condition to be met. Enforcing the small rules could prevent serious problems when the code is changed, Cheshire said. "It's the sort of things that because of their minor nature could lead to things later on."

Often the small errors can be the hardest to debug because they are more easily overlooked, he said.

Users can select which rules from among more than 200 are enforced, and they can create their own from a development kit. In addition, they can look at errors individually, similarly to reviewing changes during a search-and-replace command, or automatically change them all, as in a replace-all command.

Cheshire said the company had not determined how long the introductory pricing would last because it will depend on how quickly the company gains a foothold in the market. However, he did estimate that the pricing would last at least three months. The actual retail price will be between \$595 and \$795, the company indicated. ■

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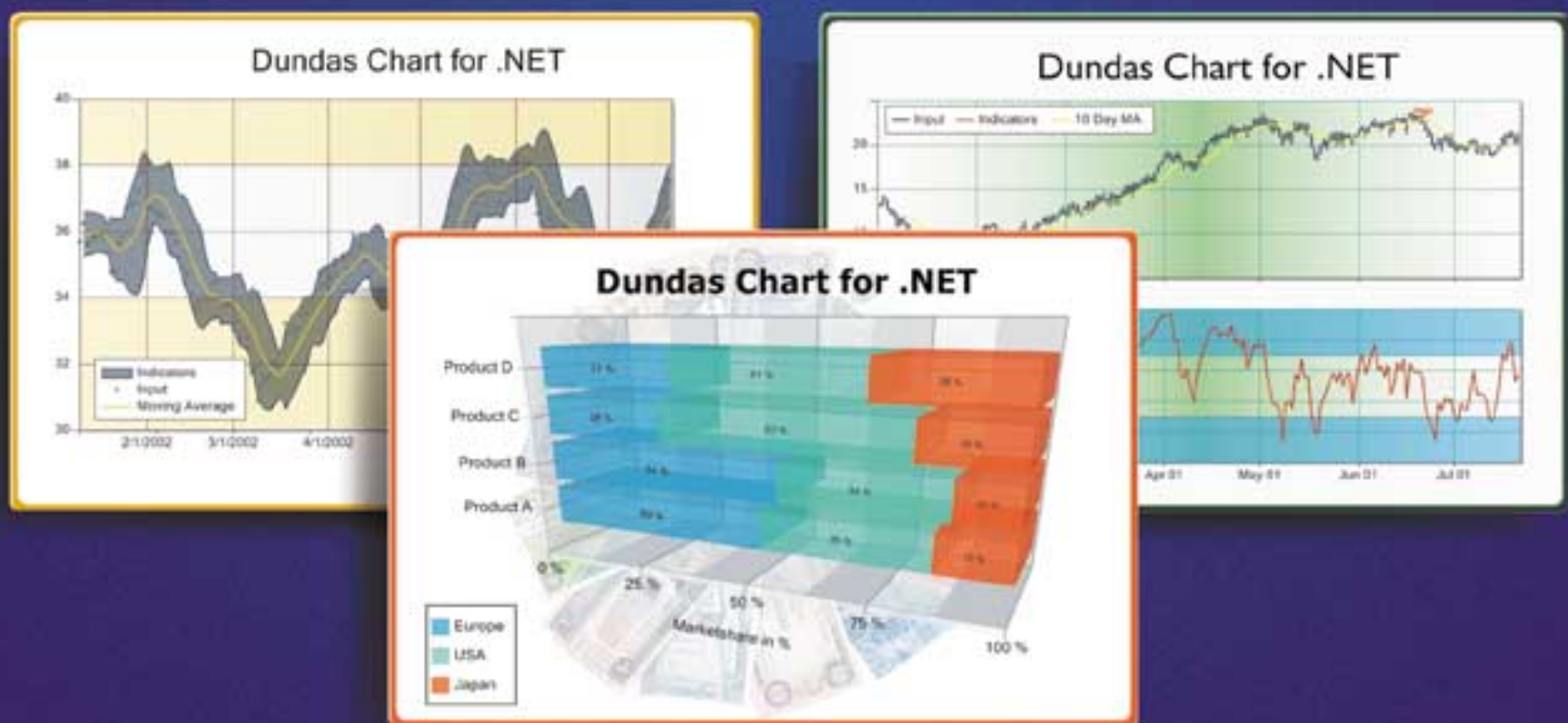
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News Briefs

COMPANIES

Palo Alto Research Center, a subsidiary of Xerox Corp., has transferred its AspectJ technology to IBM's Eclipse open-source project. AspectJ is a Java language extension for aspect-oriented programming . . . JBoss developers can manage performance using **Borland Software Corp.**'s Optimizeit Suite for Java because Borland and **JBoss Group** have integrated Optimizeit Suite for Java with the JBoss application server.

PRODUCTS

Version 3.0 of **Strobe**, Compuware Corp.'s mainframe performance management software, now supports JVMs on OS/390 and z/OS. The company also updated its **Uniface** enterprise development environment; version 8.3 allows applications to be published as Web services . . . LogicLibrary Inc. will be releasing a version of its Logidex asset management system that plugs into Visual Studio .NET 2003. **Logidex .NET Library**, to be shipped later this year, will provide VS.NET users access to resources on MSDN . . . Virtuas Solutions LLC has updated and renamed its model-view-controller Java framework formerly called **Web Application Model**. Now named **TurboM2**, version 2.0 uses the Java Standard Tag Library, automates conversion of data requests into Java Data Objects, and has an IDE plug-in for Eclipse and NetBeans. The company also has formed an open-source project around the MVC framework . . . Prophecy International Pty Ltd. has released **e-Foundation over Legacy**, a rapid application assembly tool that lets developers integrate Ingres or Oracle databases on mainframes into client/server applications . . . QA Systems has released a plug-in for its **QStudio Java Pro** code-review tool that allows it to work with IBM's Eclipse and WebSphere Studio IDEs. The tool, which runs on Linux, Solaris and Windows, costs US\$295 per seat . . . **Radar** is a new Web-based bug-tracking system from Cosmonet ▶ continued on page 11

JAVAONE TO PLAY OUT THREE THEMES

BY YVONNE L. LEE

Innovation, Web services and mobility are the three main themes for Sun Microsystems Inc.'s annual JavaOne developer conference, set for June 10-13 at the Moscone Convention Center in San Francisco.

Three of the four days will have a single theme, which will take eight tracks: Java Core Technology, Java Technology in Mobility, Core Enterprise, Java Technology in the Web Tier, Web Services, Java Technology

on the Desktop, Java Technology Products and Success Stories, and Advanced Networking Technologies. The Java Technology in Mobility track is the largest, with 37 sessions.

Officials at both Sun and show producer Key3Media Group LLC declined to give an expected attendance figure, but claim registrations have been about level with last year.

"We expected it to be a little bit lower because of the war, but now that things are getting buttoned up, it hasn't dropped off as much," said Sun JavaOne spokesperson Laura Ramsey.

Neither company would say what last year's attendance was, but outside sources pegged it anywhere from 6,000 to 12,000, down from its peak of 20,000 in 2000. ■



CONFERENCE:

June 10-13
Moscone Convention Center, San Francisco

CONFERENCE HOURS:

Tuesday, 8:30 a.m.-7 p.m.
Wednesday, 8:30 a.m.-7 p.m.
Thursday, 8:30 a.m.-6:16 p.m.
Friday, 8:30 a.m.-3:45 p.m.

JAVAONE PAVILION HOURS:

Tuesday, 11 a.m.-9 p.m.
Wednesday, 10 a.m.-7:30 p.m.
Thursday, 10 a.m.-7:30 p.m.
Friday, 10:30 a.m.-3 p.m.
<http://java.sun.com/javaone>

4D Focuses on XML

BY ALAN ZEICHICK

4D Inc. has updated its 4th Dimension database and Web application platform to include Web services capabilities, a new report writer and a more robust IDE.

On the Web services front, 4th Dimension 2003, now generally available, can act as a client and server for SOAP 1.1 transactions, and according to the company (www.4d.com), allows existing database methods to be published as SOAP methods.

The software's report writer contains a new report-genera-

tion wizard, and now allows the creation of cross-tab and list reports. Those reports now may be output as XML documents.

The IDE, which runs on Mac OS 9, Mac OS X or Windows, now includes a method editor as well as an integrated compiler.

The runtime for desktop 4th Dimension 2003 applications is priced at US\$349 per user; server deployment licenses are \$1,590 for two concurrent connections. The development tools, which also include ODBC and Oracle connectors, are priced at \$799. ■

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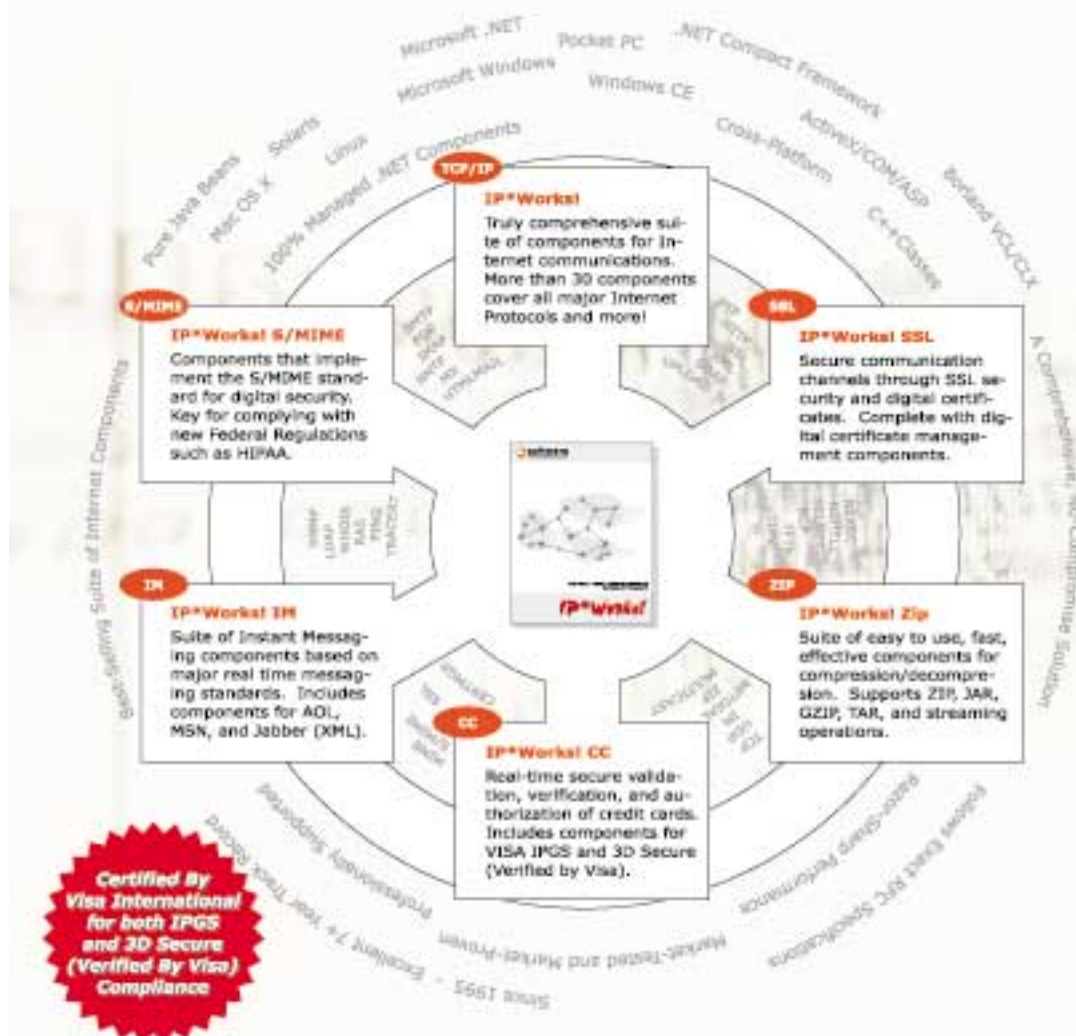
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Microsoft Joins More Than Shows as TechEd, MEC Merge



CONFERENCE:

June 1-6
Dallas Convention Center

CONFERENCE HOURS:

Sunday, 11 a.m.-6 p.m.
Monday, 10:45 a.m.-6:15 p.m.
Tuesday, 10:45 a.m.-6:15 p.m.
Wednesday, 8:30 a.m.-6:15 p.m.
Thursday, 8:30 a.m.-6:15 p.m.
Friday, 9 a.m.-4 p.m.

EXHIBIT HOURS:

Monday, Noon-3:30 p.m.
Tuesday, Noon-5 p.m.
Wednesday, 10 a.m.-3:30 p.m.
Thursday, 10 a.m.-3:30 p.m.

KEYNOTE SPEAKERS:

Monday, 9 a.m.-10:15 a.m., Paul Flessner, senior vice president of server platforms, Microsoft Corp.

Tuesday, 9 a.m.-10:15 a.m., Scott Charney, chief security strategist, Microsoft Corp.

www.microsoft.com/usa/teched

BY EDWARD J. CORREIA

Microsoft Corp.'s largest developer conference is about to get even larger. This year's developer-focused TechEd Conference, scheduled for June 1-6 at the Dallas Convention Center, will envelop the Microsoft Exchange Conference (MEC), the company's show for information technology workers, and is perhaps reflective of Microsoft's strategy to bring together the two key groups involved in the success of its .NET Framework.

By far the company's largest conference, TechEd in 2002 attracted more than 75,000 attendees, according to Microsoft. MEC in 2002 drew a relatively modest 5,500 attendees. Both shows hosted about 200 exhibitors, the same number slated for this year's TechEd; projected attendance figures for this year's show were not available at press time.

TechEd 2003 will add two

days to last year's schedule—including Sunday's preconference sessions—and roughly 100 additional sessions, about 350 in all, some of which are MEC transplants. The combined show is intended to attract network administrators and developers alike, with so-called breakout sessions covering Windows administration and management (including Windows Server 2003), Visual Studio .NET, and data management for SQL Server. There are 60 sessions dedicated to Exchange Server and Exchange Server 2003.

Developers and administrators also may find useful the 30 self-paced hands-on labs, which this year will include building applications with SQL Server CE; creating Windows, Web and mobile applications with Visual Studio .NET 2003; and building SQL Server notification services. ■

News Briefs

MORE PRODUCTS

← continued from page 10

Solutions Ltd. Radar includes a review-based model that follows SEI CMM principles, multiple security levels and a report generator, and can export bug reports to Excel ... OpenLink Software Inc. has updated its **Virtuoso** cross-platform virtual database. Version 3.0 allows concurrent access to ODBC, JDBC, OLE DB and .NET-accessible databases, XML documents and Web services ... Mentor Graphics Corp. has shipped a version of its **Nucleus** RTOS for the ARM10 processor; new licenses cost US\$12,495 ... Version 1.1 of Eiffel Software Inc.'s **Envision** plug-in for VS.NET includes a new incremental compiler for the Eiffel language, class and feature browsing, a multiplatform GUI builder and enhanced code libraries ... Gamma Technology Enterprises Inc. has released **JSAP**, a tool that lets developers using Borland's JBuilder IDE build applications that can interoperate with SAP R/3, including accessing objects and querying tables ... MetaQuest Software Inc. has updated its bug-tracking software, **Census**, to include new project templates for tracking customer bug reports. Version 5.5 also offers improved Web-based reporting.

STANDARDS

The ISO has ratified Microsoft's specifications for **C#** and the **Common Language Interface** parts of .NET. C# is now standard ISO/IEC 23270, and the CLI is ISO/IEC 23271 and 23272 ... The Java Community Process is working on **J2SE 1.4.2**; a list of the 164 changes can be found at <http://java.sun.com/j2se/1.4.2/jcp/beta/apidiffs/index-diffs.html>. The JCP also has community drafts available for **JSR-173, Streaming API for XML; JSR-177, Security and Trust Services API for J2ME; and JSR-205, Wireless Messaging API 2.0** ... IBM and Microsoft have submitted an **XQuery** test suite to the W3C. XQuery is an XML-based data query language. ■

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RATIONAL

← continued from page 3

requirements-management tool, in the WebSphere Application Developer tool kit. Woodward said he sees the future of the Rational tools as being rolled into the IBM IDE.

Woodward added that IBM

said Tivoli and Lotus also would remain independent, "but the honeymoon's a short one. They might call it a division, but it's tightly integrated with the rest of the company."

Gartner's Duggan said, "Even if Rational plays fair, it won't be a channel for Microsoft. And there isn't a real good

second choice. Borland's a J2EE player; Mercury's close but a third of the size of Rational."

INCESTUOUS BUSINESS

Microsoft's Sridharan added that he has heard the concerns of customers about Rational being tied closely with IBM and said, "I'm sure at a pay lev-

el higher than mine those concerns were raised." But, he continued, "this business is extremely incestuous. IBM and Microsoft are great partners in certain areas and great competitors in others."

Yet Greg Keller, director of design and modeling products at Embarcadero Technologies

Inc., said the acquisition, as well as Borland Software Corp.'s purchase of TogetherSoft Inc., aligned the two largest UML modeling tool vendors with Java.

"It was clear the focus of both is to make it simple to build applications against the J2EE infrastructure," Keller said. "IBM has the OS, database, application infrastructure and a model-driven approach to make it easy to get to market with a Java application.

It's what Microsoft wants for the .NET world. It's the classic "Coke versus Pepsi argument."

While some in the industry argue Rational was one of a very short list of vendors selling an "enterprise" tool suite, MKS Inc.'s chief operating officer Michael Harris said, "Unless you're platform-agnostic, you're not enterprise. By enterprise we mean, how does the tool affect the enterprise? It doesn't mean a vendor has to have every tool, but to work with the tools an enterprise already has chosen." MKS sells configuration-management and version-control tools that compete with Rational.

Harris said customers aren't looking to spend money to replace the tools they already have; they want a vendor who can understand the challenges a company is facing and help them solve their problems.

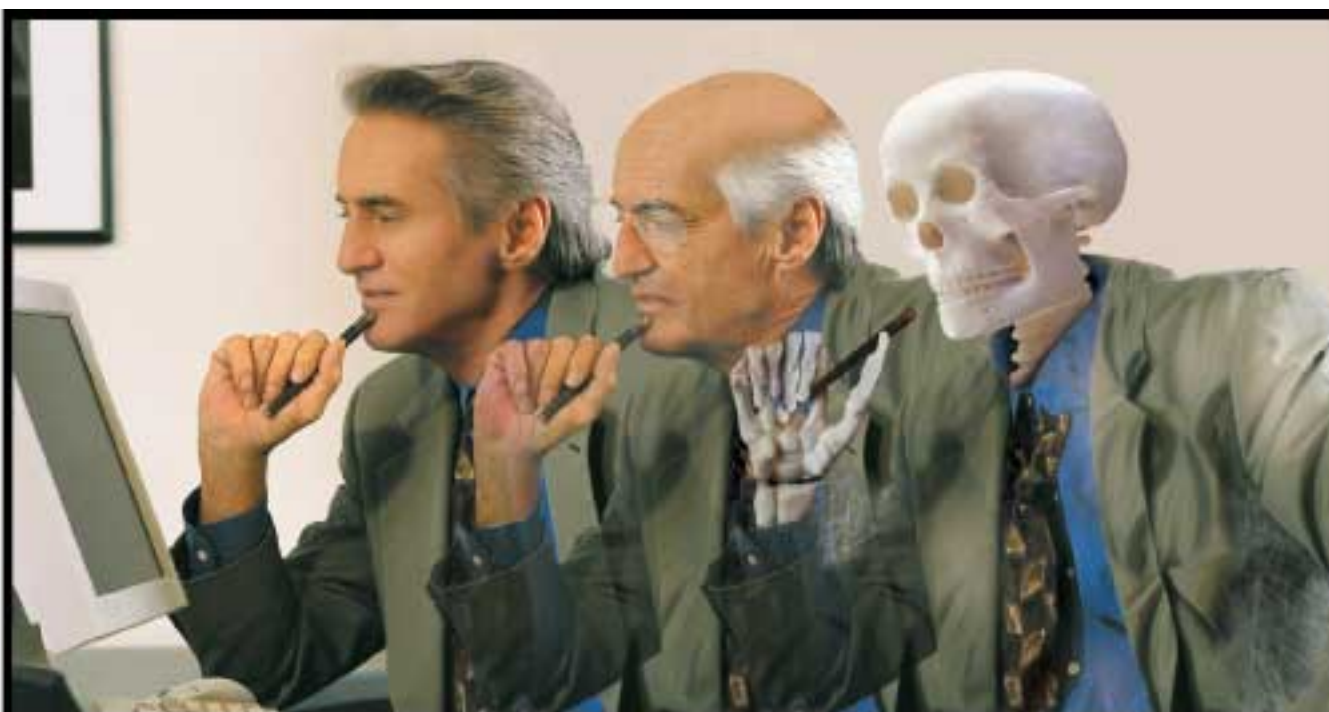
IBM's Schurr acknowledged that at one time, Rational did more business on Unix than Windows, but he said that shifted about three or four years ago. Competitors, Schurr said, "are trying to spin [the acquisition] to their advantage. The market will measure that by watching what we do."

Schurr said IBM Rational's tools, which cover best practices, testing, configuration management and a generic modeling tool, are relatively agnostic to the underlying technology. "A statement saying 'Everything Rational will become Java' is ignorant of what we do."

Gartner's Duggan said it might be impossible for IBM to make the relationship with Microsoft work long-term. "You must expect someone to do better at .NET than Rational," he said. ■



Unless you're agnostic, 'you're not enterprise,' says MKS' Harris.



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WebPutty 7 Integrates With VS.NET, Rational XDE

BY EDWARD J. CORREIA

WebPutty Inc. in mid-April released WebPutty Application Platform 7.0, the latest version of its *n*-tier Web development environment and application life-cycle tool that it says now integrates with Microsoft's Visual Studio .NET



and IBM's Rational XDE development tools, enabling developers to move easily between code, Web-services and model-based environments.

With WebPutty, modeling tools won't be shelfware, Terry Hanold, claims Hanold. WebPutty's executive vice president of market development, said, "WebPutty can find and import code and project files and automatically maintain them with any IDE. But WebPutty works within the Visual Studio .NET shell, so that when somebody makes a WebPutty application, it creates all the project files and everything else needed to tweak or extend that application within Visual Studio."

Hanold said the new version is just as tightly integrated with

Rational XDE, giving developers the ability to create working applications from XDE models and vice versa. "One of the problems that modeling tools traditionally have is they become shelfware," he said. "You'll get an

architect or modeler to build and print out a pretty model and hand a stack of papers to a developer, who may or may not follow that model. And over time, that model can quickly become obsolete," he said, and claimed that a

dynamic link between WebPutty and XDE continuously maintains an up-to-date model.

Available now, WebPutty Application Platform 7.0 sells for US\$35,000 per server processor and includes the Web-

Putty Developer Studio development environment and WebPutty Server, which sits atop a Windows .NET server. The company (www.webputty.com) also has opened and documented its API. ■

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Sun ONE Studio To Include JDO Again

BY EDWARD J. CORREIA

As a result of a partnership with SolarMetric Inc., Sun Microsystems Inc. in mid-April said that it would again integrate the Java Data Objects specification with its Sun ONE Studio IDE through a plug-in for SolarMetric's Kodo JDO implementation. The JDO specification provides a means to persist Java objects in a database without use of that database's query language. Sun's own implementation of JDO had been dropped from its IDE following a product rebranding in May 2002.

"There was a request from our user base to go back to supporting JDO," said Joe Keller, vice president of marketing for Java Web services and tools at Sun, in a statement. Kodo JDO integrates as a menu item in Sun ONE Studio.

Available now, SolarMetric's plug-in costs US\$3,000 per developer seat with no runtime royalties. The company (www.solarmetric.com) also offers a 30-day evaluation version. ■

COMPONENT

◀ continued from page 1

"We're recognizing that we're in a bigger space than we first thought," Stack said. "People are using CMEE to distribute frameworks, or inventory the IT assets of acquired companies. Compo-

nent reuse is a software development phrase for business problems, and our customers had different names for business problems, but we're seeing it's the same problem."

Patterson said ComponentSource will benefit by being able to market its components to Flashline's existing customer

base, and will offer CMEE for sale from its Web site (www.componentsource.com). ComponentSource offers a solution called SAVE-IT, which is hosted, whereas Flashline's CMEE (www.flashline.com) is a stand-alone, installable on-site product.

In other news, Compo-

nentSource has entered into partnership with several industry consulting firms to offer SAVE-IT as the foundation for any component reuse initiatives their customers might want to undertake. The companies are Everware Inc., which is focused on governmental agencies doing Java

development; ICS Solutions Inc., a .NET organization with a strong presence in Europe; Select Business Solutions Inc., which will integrate SAVE-IT with its Component Manager and Component Factory tools; and Trireme International, which targets the Asia market, Patterson said. ■

RICH WEB

◀ continued from page 4

You can do some proactive caching to bring up the same data each time a person comes on."

Dalton believes it will take some time for developers to feel comfortable working this way. "It's one thing to get data, and another to create user interfaces appropriate to that task." The W3C, which is shepherding numerous Web services specifications through to standards, cares about the data and how it's accessed, transformed and secured. But the body, Dalton claimed, does not care about design standards, so the industry is falling back on some of the old standards Apple and Microsoft have documented for creating interfaces.

Dalton and Rodney Aiglstorfer, national director of technology for professional services firm Semaphore Partners, agreed that the Scalable Vector Graphics standard pushed by Adobe Systems Inc. can help developers accomplish many of the same things, with the Adobe Acrobat Reader serving as the delivery mechanism.

"SVG parses XML on the browser; it's lightweight," Aiglstorfer said. "In terms of development, if I'm not streaming video, to a certain level of complexity, there is a parallel. It's a great solution for static media, to dynamically generate documents and forms, and it has inherent support for animation and filters, with built-in shadowing and opacity. And the output can be as PDF (Portable Document Format) or easily converted."

Dalton said, "Adobe is pushing [Acrobat] Reader, opening it up. You can do cool offline interaction with the document-intensive process. But it has been thought of for documents and not applications. I don't know that the line will remain distinct for long."

The future, Aiglstorfer said, is to deliver these rich applications onto smaller devices. "People have that expectation now," he said. ■

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SUN CHALLENGES

← continued from page 1

tems: The Microsoft of Java?" compared BEA's WebLogic and Workshop to Microsoft in that they provide "one development environment aimed at a broad audience and a coherent platform of products underneath that work seamlessly."

By contrast, said SoundView analyst Greg Greiner, "IBM has some integration of its own to do across its product portfolio."

As the application server market evolves, the high end is getting saturated, leaving room for smaller players, Hailstone said. "Oracle is also in there with an application. Novell is in there, and they're doing some interesting things."

Greg Keller, director of modeling tools at Embarcadero Technologies Inc., said Sun's actions are almost as confusing as its mixed messages. He added that Sun's emphasis now appears to be on its network computing initiative, which is more about Sun's software and hardware products coming together and less about the Java community platform.

"When you look at what they're doing, it's two feet forward, three feet back. Look at NetBeans as an example," he said, citing first Sun's complaint that IBM's Eclipse was duplicating the open framework effort, and then Sun's failure to advance NetBeans beyond what it has been for the past few years.

MAKING MONEY OFF JAVA

One of Sun's problems, said an analyst at a New York financial firm who asked not to be identified, is that while the other companies have made money from Java products, Sun seems to perceive Java as a way to sell servers. "It's meant to drive hardware revenues, so it's really hard to see how that's working," said the analyst. "Java's definitely doing well; it's just that, can they monetize it?"

There, Sun could learn a lesson from IBM. Although services and hardware brought in more revenue than did the Armonk, N.Y., company's software units, the software group had the highest profit margin—nearly 85 percent—of any group in the company for the most recent quarter, ended March 31. Revenues for the software group grew by 8 percent, with the WebSphere group doing its share by growing 14 percent.

The problem for Sun, according to Bear Stearns analyst Naveen Bobba, is that it is trying to be both a systems company and a software company without having the resources of, say, an IBM. In this regard, he said, it is competing against not just IBM and BEA, but also Intel and Microsoft. "The issue

for Sun really is, can Sun invest and compete with multiple companies?" said Bobba.

Still, having the plethora of competitors may not really be a bad thing. In fact, it may prove that Java is the multivendor platform that Sun has been touting, Hailstone said.

"In one way, it's what makes


Java what it is, there's a lot of competition, which keeps the prices from getting dominated by one player," he said.

Don't look for Sun to hand Java over to a standards body any time soon, he added. It still gets some benefit from owning the specification, such as being able to deliver the first development

environment adhering to the J2EE 1.4 specification.

"I think they've managed the stewardship very well," he said. "They're pretty good at taking inputs and not imposing their will against the rest of the market." ■


David Rubinstein contributed to this report.



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CFCOM Eases Odyssey of Compact Framework Migration

On-device WinCE component bridges gap between native, managed code

BY EDWARD J. CORREIA

With general availability of Visual Studio .NET 2003 set for April 24, Microsoft was to officially introduce the Compact Framework runtime environment for Windows CE. According to Odyssey Software Inc., the new framework breaks applications that need to access COM components or ActiveX controls.

Claiming to solve that problem, the company (www.odysseysoftware.com) in April introduced CFCOM, a set of components that it says enables managed-code applications to continue working unchanged with the native-code COM and ActiveX con-

trols used to build them.

Odyssey CEO Mark Gentile said that for developers moving their applications to Microsoft's latest-version operating system and development tools, none of the alternatives to CFCOM are particularly attractive. "Let's say I built an application using the prior version of Embedded Visual Tools 3.0 that used an ActiveX control for barcode scanning. If I want to develop a new application using Visual Studio .NET 2003 and the Compact Framework, which is really what I want to do for a forward-looking investment, I'll have to port those ActiveX components or any [off-the-shelf] COM components if I want per-

formance-critical portions of my code to remain native," he said.

Gentile explained that the incompatibilities between COM and .NET are due to differences in the way data types, strings, dates and numbers are represented in memory. "There's a whole collection of components that are no longer usable under the Compact Framework."

Ed Kaim, Microsoft's product manager for .NET mobile development, acknowledged the incompatibility, and attributed it to scheduling constraints and quality-assurance issues. "It was really a feature trade-off. We didn't want to leave [compatibility] out, but priorities have to be set for time. Another challenge is QA.

When we ship a product like .NET or the Compact Framework, Microsoft goes through rigorous testing. The majority of ActiveX controls are not accessible to Microsoft, so we can't make a claim on stability."

Odyssey's Gentile explained that CFCOM performs memory-to-memory marshaling between COM and .NET, thereby allowing components to continue working.

Another way to perform this bridging, Gentile said, is by developing what he referred to as a shim or flat DLL. "But that's a very ugly prospect and extremely complicated. It's like building a device driver, and requires a highly qualified engi-

neer to develop." Further, shims work only with nonvisual components, he said.

Available now, CFCOM occupies about 37KB on the target device, Gentile claimed; it also includes components for Visual Studio. Pricing starts at US\$49, including unlimited distribution for developers needing to integrate with a single COM object that Microsoft builds directly into ROM. Examples include the ADO.CE ROM, which controls Windows CE's lightweight database, and the PocketOutlook ROM for contact and calendar data. For unlimited component access, pricing ranges from \$395 for 50 devices to \$995 for 500 devices. ■

PALM STRATEGY

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for its applications.

The delivery mechanism behind Qualcomm's Binary Runtime Environment for Wireless (www.qualcomm.com/brew), called BREW Shop, includes an automated billing system that according to Ro is its most important benefit. "BREW's value-add is centralized around outsourcing the delivery and billing process to Qualcomm. The costs incurred get managed by [Qualcomm]," which divides application revenues among carriers and developers.

"BREW is a great infrastructure for delivering applications and for billing," agreed Albert Chu, vice president of business development at Palm subsidiary PalmSource Inc., which develops Palm OS software. "But for enterprise users to use their smartphone at work, they need a secure solution that IT managers feel comfortable with that can go behind the firewall and sync with their machine."

That's where the Spontaneous deal comes in. According to Jamon Jarvis, executive vice president of finance and general counsel at Spontaneous (www.spontaneoustechnology.com), the company expects in late May to release sVPN for Palm OS, a secure virtual private networking client that he said will permit transparent back-end connections via cell-phone networks with no changes to program code. "The benefit for the

enterprise is that users can establish a secure data connection over the air and press the HotSync button to receive all data [to and] from my desktop that is set to be synced."

Chu claimed that the benefits of this capability will be far-reaching. "Most of our customers are using our devices for productivity, sales-force automation and CRM—uses where wireless mobility will be a key enabler. But today, a Palm OS user running a field data collection application goes back to the office at the end of the day and cradles the device to synchronize with servers behind the firewall. With sVPN, we are enabling a secure wireless HotSync experience from anywhere at any time."

Verizon Wireless will likely be the first carrier to offer the service, which according to Jarvis will cost between US\$7 and \$10 per month. Spontaneous also will offer sVPN clients for Pocket PC, WAP, BREW and Java.

PALM'S WIRELESS HARDWARE

Alex Slawsby, an analyst covering smart handheld devices for IDC, said some of Palm's other recent moves also bode well for its future, including the company's voice-enabled Tungsten W, released with AT&T wireless network service in the U.S. in February. "They've gone from a wireless

data-only strategy to a strategy that takes voice into account. In the next few years, data-only wireless devices are going away and will be replaced by voice-enabled devices," examples of which include devices from Handspring, Kyocera, RIM and Sony. And as the devices go, Slawsby said, so go the networks. "It's not making sense anymore for companies to maintain wireless data-only networks, such as Mobitex and pager networks."

Opposing Slawsby's view of the destiny of data-only wireless networks is Gregor Bleimann, senior director of wireless product management at Palm Solutions Group, which develops Palm's hardware. "I believe there is a future for them. Because when you have dedicated networks, you give the user a unique experience and the best experience in terms of the functionality they are looking for. Do I think the market will diminish a bit? Yes I do, because as the market moves forward, it will be a mixed bag of voice and data."

Bleimann said Palm's strategy is tracking that need with devices like Tungsten W, but it also will stick to its roots. "The Tungsten W was designed for data with wireless added as an application. It's all about bringing the data from a corporation or individual database to a device to carry around and

manipulate. At the same time, there's still a predominant segment that still needs basic PIM functionality in a \$99 to \$299 price range, and we don't see that going away any time soon."

Still, with today's trend toward convergence, Slawsby said wireless carriers are spending vast resources to expand their networks to cash in. "Voice becomes the killer app as a value-add, which quickly trumps wireless data-only solutions."

Slawsby also believes that market conditions make it increasingly difficult for hardware-only companies to survive. "Palm Solutions Group is dependent on mobile-device hardware revenue, a difficult business model in a time where hardware is becoming commoditized. Devices are cheaper, margins are dropping, and volume is staying the same or growing just slightly. Revenue from hardware is dropping quickly, and if that's your core leg to stand on, you're in trouble. I think Palm needs to diversify their strategy and find strong revenue streams beyond devices."

Perhaps also cognizant of this reality, Palm announced in March that it will suspend plans to divide into independent hardware and software companies. The announcement came along with its quarterly earnings report for fiscal 2002 ended March 1, which showed a 1 percent increase in revenue from the previous quarter, but a decline

of 38 percent from the same period a year ago.

But dropping plans to divide raises another issue, according to Slawsby. "As PalmSource becomes a separate entity, it will be more free to do what is in its best interest and not be beholden to any particular hardware group. When the two were intertwined, there was a question about the extent to which Palm would not only support its own device efforts and platform goals, but also those of its licensees. So in a sense, it was competing against itself."

STILL NO WEB SERVICES

Whether as two companies or one, Palm will continue to develop its wireless strategy, which Bleimann said will include Web services, although he declined to say exactly when. He did say, however, that interoperability with major J2EE app servers would come this year.

"We're working with IBM and BEA to enable devices to connect to [WebSphere and WebLogic], but we've not made any announcements. There's also a lot of activity among third-party developers to make the connection from Tungsten and Palm OS to enable data to move back and forth. We recognize that the wireless part of the PDA space is going to grow dramatically over the next few years, and we'll certainly continue to bring wireless capabilities to our handhelds." ■



BREW's billing system is a key asset, says PalmSource's Chu.

MICROSOFT

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access to the Windows CE source code," explained Microsoft senior VP Craig Mundie, who announced the program in mid-April. "The device manufacturers will be given the right to create derivative works for

commercial purposes, from the source code that they have. This is the first time that Microsoft has allowed derivative works to be produced from one of our platform operating-system products."

Mundie said that Microsoft would be releasing the entire source to Windows CE under

the program, except for code that Microsoft itself had licensed from third parties and did not have permission to redistribute in source form. "That's a very small part of the Windows CE offering," he said.

A reason that vendors want to modify the Windows source, he said, would be to support

new classes of hardware devices, where the changes go beyond simply writing new Windows device drivers. Under the Shared Source Premium program, OEMs would be able to modify Windows classes, or alter Microsoft's device drivers to optimize performance for specific devices.

There are two caveats in the license, said Mundie, for companies that modify the Windows CE source.

First, OEMs who use a modified version of Microsoft's Windows CE source in their products are required to license those modifications back to Microsoft, either transferring

ownership of the intellectual property or giving Microsoft a free perpetual license to use it in future Windows CE releases. Second, OEMs may not redistribute the modified version of Windows CE as a stand-alone operating system or to other OEMs, but can only use it themselves in their products.



With Windows XP, you can look but can't touch, says Microsoft's Mundie.

BEYOND CE

According to Mundie, Microsoft has no intention of releasing other versions of Windows, such as Windows XP, Windows XP Embedded or Windows Server 2003, using Shared Source Premium. However, large customers, OEMs and governments can still obtain permission for look-but-don't-touch access to subsets of the source.

"We do have embedded versions of the full Windows products, but we haven't chosen to make them available in a similar way, because that ecosystem is more constrained due to processor architecture and the class of devices that can be assembled under the traditional Intel PC form factor," explained Mundie. "There hasn't been the same kind of demand for personalization, at this very low level, to meet the market requirements."

Microsoft, which continues to decry the concept of open source as harmful to intellectual property, offers shared-source licenses for its C# and JScript implementations, and for the Common Language Infrastructure, a subset of its .NET runtime platform.

Since last year, the company also has offered an academic program, where students and faculty are allowed to modify the Windows CE source for what Mundie called "educational purposes," but they are not allowed to release products incorporating those changes. ■

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How Linux Is Changing The Development Landscape

BY JENNIFER DEJONG

In the beginning, Linux was not just an operating system.

It was a belief system, with a mandate of free, open-source software for all.

Even when it edged its way into the corporate enterprise as a cost-effective choice for Web and e-mail servers, Linux remained part of the Web culture, where open-source software—and thinking—thrived.

Today, as a growing number of companies commit key business applications to Linux, the operating system is no longer aligned with only the software counterculture.

As Linux loses its rebel image, its growing presence in the enterprise promises to radically alter the way developers write and deploy applications. Changes are happening on two fronts: Linux is giving rise to a new crop of native Linux development tools. And it is propelling many development shops toward a true cross-platform development environment, in which Linux, Solaris, Windows and other operating systems coexist.

"When you add [Linux] to your infrastructure, it has an impact on the whole infrastructure," said David Intersimone, vice president of developer relations at Borland Software Corp.

Running on Intel (or AMD) boxes, Linux is showing up in corporate IT environments as a replacement for both Unix servers and Windows servers, said Forrester Research Inc. analyst Ted Schadler. Fifty percent of the corporations Forrester surveyed earlier this year said they have current Linux experience or plans, and 72 percent expect to increase their commitment to Linux in 2004.

ANYTHING YOU CAN DO

One result of Linux's increasing presence is the emergence of sophisticated development environments that aim to offer developers Linux tools on par with those available for Windows. Borland's Kylix is one example. Kylix is a C++ and Delphi programming environment for Linux, which includes visual design tools, a component library, a code editor



and an integrated debugger. "Anything you can do in Windows, you can do in Linux," said Borland's Intersimone.

Also accelerating the move toward Linux is IBM Corp.'s Eclipse Project, as well as the company's "Speed-start your Linux app" program. Eclipse is an open-source framework that the company characterizes as a toolkit for designing toolkits. The idea behind Eclipse was to create a framework that developers can plug their tools into, providing many of the underlying services software developers need. To date, 7 million developers have downloaded Eclipse, up from a little more than 2 million in November of last year, according to an IBM spokesperson.

IBM's "Speed-start your Linux app" program provides a Web site with free technical support and a free IBM Software Evaluation Kit (SEK) for Linux, a set of four CDs with evaluation copies of IBM software offerings: Eclipse-based WebSphere Studio development tools, WebSphere Application Server and Web Services Toolkit, DB2 Database, Lotus Domino collaboration software, and Tivoli Management Software.

The emergence of these tools is significant because it distances Linux from its open-

source roots and the command-line-driven tools that open-source developers favor, moving Linux into the realm of commercial development. "Open-source developers are happy with GNU Emacs and gcc," said Shawn Gordon, president of TheKompany.com (www.thekompany.com), referring to the popular, open-source screen editor and the GNU C compiler. "[Open-source developers] like to create shell scripts to compile and debug. They think it's easier, but it's not."

But corporate developers demand sophisticated, integrated development environments, with graphically oriented tools and integrated debuggers, said Gordon. "These tools really do make you more productive."

TheKompany.com assembles development tools from the Internet and open-source community and makes them available to enterprise developers.

IBM is playing a key role in bringing sophisticated development tools to Linux. "The user interface [of Linux development environments] has improved over the last couple of years, bringing them on par with Windows," said Adam Jollans, IBM's Linux strategy manager.

IBM threw its considerable weight behind Linux early on, a move many see as the pivotal event that enabled Linux to gain entrance to mainstream IT envi-

ronments. The company opened a Linux Technology Center in 1998 and ported a beta version of its DB2 database to Linux that same year. Since then, IBM has committed to Linux across its entire product line.

Other vendors, including BEA Systems Inc., Borland and Oracle Corp., also have ported their Java application servers to Linux.

DEVELOPING IN LINUX LAGS

Although tools and resources have begun to emerge, to date Linux development isn't happening in Linux. Most corporate developers writing applications destined for Linux are writing them in Windows development environments, said Mark Driver, analyst and research director at research firm Gartner Inc.

One reason is obvious: Corporate developers are running Windows on the desktop, so that's the machine they are most likely to develop applications on, Driver said.

"We developed on a Windows desktop and deployed on Linux," said Jason Becker, manager of client applications at Brunswick Boat Group Information Systems.

Becker and his team recently replaced a proprietary dial-up dealer management system running under Windows with a Linux-based WebSphere solution that allows Brunswick's dealers, who sell the pleasure boats that Brunswick manufactures, to fill out warranty claims and order boat parts online.

Traditionally, developers deployed applications on the same platform they developed on. But Linux is changing all that. IBM's Jollans said there are two questions developers must ask: "What do I develop for, and what do I develop on?"

"For the first time, a true cross-platform development environment is emerging," added Adam Kolawa, CEO of Parasoft Corp. (www.parasoft.com), which sells error-detection tools for C/C++, Java and Web applications. "Linux would not have made progress if it weren't for Java," said Kolawa.

For Brunswick, the move to Linux was motivated by the need to increase

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If you can do it in Windows, you can do it in Linux, says Borland's Intersimone.



Graphical IDEs make developers more productive, says TheKompany's Gordon.

LINUX

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the uptime and reliability of its dealer application, a goal the company has successfully achieved. But the payoff from Linux extends well beyond that, said Becker. "Linux positions us well for the next decision our business makes. We did not want to leverage ourselves into any one technology."

"At the end of the day, companies are adopting Linux because it gives them a common target platform that can service the enterprise," echoed Ash Owen, director of product marketing at Merant Inc. (www.merant.com), which sells software configuration management tools.

DO WE NEED NATIVE LINUX TOOLS?

Because it is practical and cost-effective to develop on Windows, then deploy on Linux, how important is it that more native Linux development tools emerge?

"For the corporate developer, the lack of native Linux tools is not an inhibitor to the adoption of Linux," said Gartner's Driver. He noted that Web applications are widely written in Java or scripting languages such as PHP, and perform well when deployed on Linux. "If you have the tools in Windows, why bother [with Linux tools]?"

Merant's Owen disagreed. He sees

the "develop in Windows, deploy on Linux" as an interim step, part of a phased approach in the wholesale move toward Linux. "It's critical that the GUI development environment is supported on Linux," he said. "Adoption has been slowed because the full development environments aren't there yet."

David Brown, general manager of the software enabling division in Intel Corp.'s software and solutions group, said, "Linux tools are evolving. The speed [at which that happens] will depend on the customer demand and how it increases."

But he said it is not so much a lack of tools that has slowed adoption, but the difficulty developers have in making the switch. "There is a broad base of developers [with experience] in the Windows and Sun environments, and it's difficult for them to move from one environment to another. They tend to be comfortable with, and trained on, a certain set of tools," he said. "Like any market or momentum, [the move] will take some time."

Intel's software enabling division provides services to independent software vendors porting their applications from one operating system to another, as well as to corporate customers. The company sells a range of development tools, which it also uses from an enabling perspective, said Brown.

They include compilers, such as Intel C++ for Linux, among many others, as well as the VTune Performance Analyzer. A more recent addition is Intel Thread Checker for Windows. A Linux version is expected to follow in 2004.

Much of the activity Intel is seeing around Linux, particularly with financial and Enterprise Resource Planning (ERP) applications, said Brown, is a shift away from expensive RISC-based hardware running operating systems such as Solaris to far less costly Intel boxes running Linux.

Motivated by what Forrester's Schadler calls "Intel economics," the shift away

from vendor-specific Unix variants is widely seen as a major factor driving the move to Linux.

"The 64-bit Intel chip with a free operating system has put the nail in the coffin of proprietary Unix," said David Applebaum, senior vice president of marketing at VA Software Corp. (www.vasoftware.com).

VA Software sells a product called SourceForge Enterprise Edition, a unified development environment for managing code and processes surrounding it. Applebaum said such

tools are critical for managing cross-platform development environments to which Linux has given rise.

Although companies adopting open-source Linux like the lack of licensing fees, it is widely agreed that the savings associated with moving from Unix to Linux are derived from the dramatically lower cost of hardware. "With Linux, the big cost saving is hardware," said IBM's Jollans. "Companies are taking server farms [that ran on RISC-based hardware] and combining them onto a single system running multiple copies of Linux."

The move from Unix is a natural fit, since Linux itself is a Unix derivative, said VA Software's Applebaum. But with Unix, it was difficult to achieve direct portability to HP and Sun. "With Linux, the ability to provide that level of interoperability is finally in our grasp," he said.

Just how far and how fast the move to Linux will proceed is not yet clear. Brunswick's Becker, for one, expects to increase his company's commitment to Linux this year, using the Eclipse open-source tool set.

His advice for other developers considering the shift? Make sure the move to a new tool set doesn't affect your ability to do business. "The shift should happen with a minimum of disruptions," he said. "It will not impact how we sell boats." ■



Linux cuts hardware costs, says IBM's Jollans.

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'Corporate Linux'—Not a Contradiction in Terms?

BY JENNIFER DEJONG

Ask corporate developers what they like about Linux, and they'll say reliability, interoperability and the way it helps them get more out of their existing hardware and software.

But rarely do they mention the operating system's open-source origins, or the grass-roots effort that built Linux into what it is today.

That's hardly surprising when you consider that the culture of open-source software is in some ways fundamentally at odds with the needs of corporate developers. In the early days, Linux bugs were addressed when members of the open-source community put patches on the Internet, said Adam Jollans, Linux strategy manager at IBM Corp. "But [corporate developers] need a better guarantee than that."

Ironically, however, IBM and other companies delivering commercial products and services around Linux aren't anxious to abandon Linux's open-source past. In fact, they are harnessing the power of the open-source community to help ensure the commercial adoption of Linux in corporate enterprise environments.

"[The open-source community] helps make Linux more enterprise-capable," said Jollans.

Borland Software Corp. is making available an "Open Edition" of its Linux development environment, Kylix. That has helped Borland maintain ties with the original Linux community. "We understand the reality of a good part of the Linux community. We want to make sure we weren't the company that took it over," said David Intersimone, Borland's vice president of developer relations.

Currently, much of the development effort around Linux focuses on building up IBM's open-source development framework, Eclipse, into which members of the Linux community can plug their tools. Eclipse is used to create integrated development environments that are used to develop applications that can be deployed in multiple execution environments.

Red Hat Inc. (www.redhat.com), which distributes GNU-Pro, the Linux open-source C and C++ tool suite, recently created a Linux threading tool, which it developed as part of the Eclipse Project. "It was exciting

to work with partners on the requirements," said Karen Bennet, director of engineering at Red Hat, whose focus on Linux includes new testing tools for Linux that will give developers an easy way to detect runtime

and memory access errors. Other recent additions include a plug-in that provides a graphical interface to the debugger, and a profiler tool that identifies hot spots in code—places where performance problems are likely

to occur, said Bennet.

As Linux goes corporate, and companies that stand to profit from it redefine what it means to participate in the open-source community, the term "open source" is losing its meaning.

"At the end of the day, somebody, somewhere, is paying for something," said Shawn Gordon, president of open-source tools vendor TheKCompany.com. "The open-source, free model breaks down." ■



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EDITORIAL

Thinking Rationally

IBM Corp.'s acquisition of Rational Software Corp. is undoubtedly going to be good for IBM, and for IBM's customers. And for Rational's and IBM's competitors.

Rational's software assets will prove valuable for bolstering Armonk's eBusiness on Demand initiative. Rational's complex tools will provide more fodder for IBM Global Services to install and support. Tighter integration between Rational's tools and WebSphere will increase the attractiveness of IBM's app-server platform, and indeed, Rational is a marque that will add considerably to IBM's sales portfolio.

IBM is maintaining that Rational will continue to represent a vendor-neutral solution. However, that's not in IBM's best own interests. While we should expect Rational tools to continue to support other J2EE platforms, as well as .NET, if you don't believe that Rational's offerings will soon be biased toward Eclipse, WebSphere and DB2, well, we have a nice bridge in Brooklyn to sell you.

Where does this leave Rational's non-IBM customers? While many will stick with Rational's Rose, the Rational Unified Process or XDE, others will be unhappy with the new ownership, and on that basis, choose other UML modelers, testing tools, project management software and SCM platforms.

What about partners? Rational is transitioning from a respected (and feared) vendor-centric thought leader to becoming a vendor-specific tools division that will be shunned by the likes of BEA, Microsoft, Oracle and Sun.

At first, those companies will maintain their partnerships with Rational; strategic alliances and software integration take a long time to weave. As soon as competing products demonstrate category leadership, however, the big vendors will drop Rational like a stone. They'll be as likely to recommend IBM's ClearCase as, say, Oracle would be to bundle BEA's WebLogic Workshop with 9iAS, or Sun would be to resell Microsoft's Visual J#. After all, nobody wants to put more money in IBM's coffers.

Is this bad? Not at all. Rational has played too dominant a role in the software development industry. The collection of brainpower, large corporate customers, solid financials and a strong vendor-neutral stance has given Rational the ability to set the agenda and define standards. The IBM relationship gives other vendors new opportunities for growth, which will fuel competition and innovation.

That's not to say that IBM's Rational Division will stop innovating, or will suffer any sort of decline. The brainpower is still there. IBM has more corporate customers and R&D cash than Rational ever did. IBM's global reach will increase software sales. IBM is good for Rational, and Rational is good for IBM.

Meanwhile, Rational's competitors are licking their chops in anticipation of signing up new customers and partners.

The only potential disruption will be to Rational's non-IBM-shop customers, particularly those who use its Unix and Windows/.NET solutions. They may choose to seek alternative solutions rather than be sucked into the Big Blue maelstrom of Linux, Java and WebSphere. Considering the number of excellent solutions on the market, many of which are less expensive than Rational's, they'll be long-term winners as well. ■

GUEST VIEW

IS IIS 6.0 READY FOR THE WILD WEB?

IT professionals are unfortunately familiar with the recent string of worms explicating holes in Microsoft's Web-based security. The lapses in security even prompted Bill Gates to write the infamous Trustworthy Computing memo. Windows Server 2003 and the greatly overhauled Internet Information Server 6.0 are some of the first products released in this new, post "Code Red," era. Is this combination truly ready for the wilds of the Web?

Windows Server 2003 and IIS 6.0 make good progress toward functioning as an enterprise-caliber Web server. To understand why this is true, one must look at two areas of IIS 6.0 that received a large amount of attention in the overhaul: reliability and security.

IMPROVED RELIABILITY

First look at the area of reliability. For an enterprise to entrust its critical Web presence and processes to a Web server, the server has to be able to respond to varying demands at all times. IIS 6.0 is completely overhauled and redesigned with a fault-tolerant process architecture. In the existing version, a single failure in a Web application could cause failure of other Web sites and applications. With the self-contained isolation units, called application pools, the worker processes of one application can't affect the other applications hosted on that server.

But isolating application faults from affecting other processes is only part of the battle. What happens after a process fails? IIS 6.0 steps up in this area as well. With its built-in health monitoring, IIS 6.0 can ping a Web site on a configurable interval and restart the application if the Web site is unavailable.

Pinging a Web server is one of the oldest denial-of-service attacks in the toolbox of any bored teenager, let alone a serious hacker. IIS 6.0's new rapid fail protection helps to protect the server against these basic attacks while also providing a failsafe against

fault applications. Rapid fail protection safeguards the server by disabling individual Web applications that fail repeatedly in a short period. This will cause any new requests to the specific application to receive a "503 Service Unavailable" error, but will notify the administrator or take other corrective action to help ensure the survival of other running applications.



BRAD
McCABE

Those are just a few of the long list of reliability features that Microsoft has added to this release of IIS.

Trustworthy Computing is not just about reliability; it is about security and the concept of secure by design. Microsoft has talked about sending all of its developers to security training and about making security job one. Both concepts make great marketing and sound bites, but has Trustworthy Computing made it from marketing hype and into product? Look no further than the list of security updates to IIS 6.0.

To start, Microsoft subjected all the components of Windows Server 2003, including IIS 6.0, to a battery of security and reliability testing. Besides the threat modeling that was done by Microsoft, third-party security experts were brought in to conduct an independent security review of the product and code.

FENDING OFF ATTACKS

One main concept that came out of this testing was that Microsoft had to reduce the attack surface of the Web server. Gone are the days when IIS installs by default and with every known option enabled.

In Windows Server 2003, administrators most knowingly and willingly install IIS. Even after an administrator installs IIS 6.0, it defaults to a "locked-down" state. After installation, IIS 6.0 accepts requests only for static files.

The processing of dynamic content will require enabling by the administrator. In addition, all the time-out and other settings are set to aggressive security levels. While adding extra configuration steps for the administrator, these new

"secure by default" steps will require explicit action to enable and help reduce the number of servers that are unsecured because the administrator did not know or forgot to lock them down.

Since the default installation of IIS will not compile, execute or serve files with a dynamic extension, a malicious use is prevented from calling a page with a dynamic extension that it is not secured against. When a request is made for a disallowed extension, IIS 6.0 will return a "404 File Not Found" error message rather than a "403 Access Denied" message. By returning the File Not Found message, Microsoft has effectively reduced the amount of information available to potential hackers and works to keep them in the dark about which extensions are restricted.

The security updates to IIS 6.0 go beyond process changes and integrate into the core of the product. IIS 6.0 is designed to protect against one of the most common methods of attacks, buffer and memory overflow situations. Attacks often penetrate a server by taking advantage of the processing of large or unknown data sizes. IIS 6.0 defeats this attack method by shutting down worker processes when a buffer or memory overflow has been detected.

IIS 6.0 and Windows Server 2003 further reduce the attack surface to potential intruders by allowing the limitation of open TCP/IP and UDP ports. Reducing the open ports at an operating-system level reduces attacks against any port that might have been opened inadvertently or maliciously by a user or application.

The security system in IIS 6.0 is built on layers or rings of security. The first layer is the reduction of the attack surface with a "secure by default" design. The next layer shuts down the common attack methods, such as buffer overruns and DOS type attacks. The subsequent layer prevents or limits the damage if a user gets through the outer rings.

By default, all IIS 6.0 worker processes run under a new built-in account, NetworkSer-

vice. The NetworkService account is limited by default to the smallest privilege set needed for operation. Because NetworkService has so few rights, rogue applications have a lesser chance of exploiting security vulnerabilities.

IIS 6.0 prevents anonymous Web users from overwriting Web content, so even if an attacker gets access to a server, his or her ability to deface a Web site or update the application logic is severely mitigated.

Beyond defacing Web sites, malicious attackers often take advantage of command-line tools to implement faulty code or carry out a denial-of-service attack. To prevent all of this, the command-line tools for IIS 6.0 are not accessible to request the Web server by any user or program.

FEELING OF SECURITY

Based on this partial list of reliability and enhancements, enterprises can feel more comfortable migrating their mission-critical Web-based processes and applications to Windows Server 2003 and IIS 6.0. Microsoft has definitely made immense progress with Windows 2003 Server.

The Internet is an unforgiving and wild domain, but it is critical to the success of almost every company. Windows Server 2003 and IIS 6.0 will help enterprises share their information with everyone they need to, while not sharing it with the rest of us.

Only time will tell if Microsoft is able to deliver on the early promises of Windows 2003 and IIS 6.0. Without large-scale deployments and wide industry migration under way, it is too early to know if Microsoft will be able to move away from the current "Patch of the Week" system, but progress is being made.

IIS 6.0 closes many of the holes opened by the Web server, and Windows 2003 provides a more secure operating system than Windows 2000, thus making it an upgrade worth considering for enterprises already running IIS and Windows NT/2000—and possibly those not. ■

Brad McCabe is technology evangelist at Infragistics Inc., which sells reusable Java and Windows user-interface components.

SERVER OR PROGRAMMING MODEL?

With the release of Visual Studio .NET 2003 and Windows Server 2003, most of Microsoft's cards are now face-up on the table. The .NET Framework provides a new object-oriented framework for programming applications across all Windows platforms, VS.NET provides the unified tool set to build those applications, and Windows Server 2003 represents the first of Microsoft's operating systems to provide specific support for deploying and managing them.

For the past two years, Microsoft has been repeatedly criticized (not least by SD Times) for stumbling over the definition of what .NET is. Microsoft seemed overenthusiastic to apply ".NET" as a brand, with the chief example being The Product Previously Known As .NET Server, but now called Windows Server 2003. If .NET was a programming model, what does that have to do with an operating system? While I think Microsoft was smart to back off the name ".NET Server," a recent conversation I had with Microsoft's Richard Burte and Ari Bixhorn clarified what Microsoft was thinking.

SHIFT TO SYS ADMINS

Like anyone who's managed engineering teams, I've spent considerable effort over the years developing strategies to shift work onto sys admins. I've got enough worries in my life without being the one who's called at 3:30 a.m. because Hong Kong suddenly can't see the database.

And, with the use of positive feedback and the judicious application of small electrical shocks, I've trained my CEOs well: They've known that problems with deployment, support and system management should not cause phones in engineering to ring. The past few years have seen a problem, though, with the rise of the application server.

As more and more applications began to migrate from stand-alone machines and mainframes to the LAN and Internet, the issue of how to rapidly scale a system became prominent. To some extent, this interest was based on dot-com exuberance: I remember one particularly effusive CEO

getting worked up about our strategy for handling the million hits he anticipated in the 24 hours following our official launch date. But in general, advances in scaling strategies in the past five years or so have been very productive.

The major point of the app server is to move many of the scaling issues out of the realm of code and into the realm of system administration.

App server or not, though, highly scalable systems require certain disciplines on the part of the programmers. Just as the most sophisticated database server can be brought to its knees by open connections and needless round trips, so too can conversational state, huge spans of reference and undisciplined threading overwhelm the fastest CPUs and largest quantities of RAM.

SHIELD THE PROGRAMMER

One solution to this is to try to isolate the programmer from the trouble areas. This is the Java approach, in which the programming model radically differs between "standard edition" programming and app-server-based "enterprise edition" programming.

In J2EE, for instance, developers have to learn new object life cycles for the different types of Enterprise JavaBeans. While there's no question that the end result is highly scalable, it's also complex. Not only does the programmer have to learn a new programming model, the system administrator (or whatever title belongs to the poor sap with the pager on his nightstand) has to master new administration tasks.

What Burte and Bixhorn (product managers for the .NET Framework and VS.NET, respectively) explained to me was that in the .NET strategy, the app server is not seen as a separate layer between the server operating system and the programmer. Rather, the operating system is seen as taking on the app-server tasks of ensuring and administering issues of scalability, deployment and operations. They literally talked of Windows Server 2003 as the app server.

This is possible because the .NET Framework does not have separate programming models for "standard" versus "enterprise" programming. So calling the product .NET Server was justifiable, in that it's emphasizing the product's app-server capabilities.

In the end, though, people are more comfortable with the idea of an operating system being indispensable than an app server being indispensable, so Windows Server 2003 is probably the better name.

The benefits of a unified programming model and removing the app server as a separate tier accrue to the bean-counters (although Windows Serv-

er 2003 will cost hundreds of thousands of dollars depending on needs and upgrade scenarios, it's cheaper than most non-open-source J2EE app servers), to programmers (who don't face the serious training issues that challenge those moving from J2SE to J2EE), and to sys admins (who will still be asked to do miracles at 3:30 a.m., but at least they can do their work using native operating-system tools accessed by terminal services and supported by the training and online material of Microsoft).

Of course, the million-dollar question (to sell it cheaply) is whether teams adopting .NET will have the knowledge and wherewithal to create highly scalable systems without the disciplines being enforced by a separate app server.

Microsoft has some answers to that question, too, but the workday is ending and I don't work nights. ■

Larry O'Brien is an independent technology consultant and analyst, and the founding editor of Software Development Magazine.

WINDOWS & .NET WATCH



LARRY O'BRIEN

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THE JBOSS STORY

No analyst can tell you just how big an impact the JBoss Group's JBoss application server has had on the J2EE server market. If you listen to JBoss founder, CEO and chief developer and former Sun developer Marc Fleury, it's huge.

Indeed, the open-source JBoss had more than 2 million downloads last year—at the same time IDC reported that revenue for application development and deployment went down by nearly 4 percent in 2002.

Was that income drop all because of companies pulling back from enterprise application development? Of course not. Yes, some of that was because of the economy, but I suspect most of it was because open-source software like JBoss began winning in IT beauty contests for companies—both for a small customer's first application server or replacing big-name, high-ticket servers.

That makes sense. Unlike its smaller-scale, open-source cousin, Apache's Tomcat, JBoss has everything the developers I've spoken to say they need for serious enterprise-level J2EE development.

Well, except for one thing. Precisely speaking, JBoss isn't certifiably J2EE compliant. For more than a year now,

Fleury has claimed that Sun has blocked JBoss from taking the J2EE certification tests. Or, as he puts it, "Sun has been stonewalling us."

As reported last issue, after Sun finally agreed in March to amend the J2EE compatibility test suite so that open-source companies could license it without licensing its source code, Sun finally offered the revised open-source-friendly J2EE 1.4 test to JBoss.

This was a step forward in giving JBoss its shot at J2EE certification, right? Right? Well, maybe not.

After listening to Simon Phipps, Sun's chief technology evangelist, explain how Sun expected JBoss to fail because it didn't implement all of the J2EE standards, I think that Sun's gesture toward JBoss, allowing it to attempt to certify the app server, was little more than a public relations move.

Of course, on the flip side, JBoss is still claiming that it's being mistreated. Its bottom-line argument is that, certified or not, JBoss is J2EE compatible since Java developers can rewrite software running on BEA's WebLogic or IBM's WebSphere app servers to run on JBoss in a day. In other words, its

argument is that if it looks like a duck, quacks like a duck and walks like a duck, it's a duck no matter what some Duck Community Process has to say about it.

As I write this, it's possible that JBoss will be an official, certified J2EE application server soon. Of course, it's also possible that I'll be anointed Queen of England.

Both Sun and JBoss want to have their cake and eat it too. Sun wants a single J2EE standard, which it has de facto control over. It sees JBoss as introducing the danger of a Java fork. And that's a real concern. If there's a serious fork in Java application servers, .NET and its developers will benefit the most regardless of who ends up on top of the J2EE application server heap.

JBoss, of course, wants to retain its control of how it develops its application server, and part of that means it wants truly open standards, that is, those not under Sun's control.

What does it all mean for us? Well, for now, forking is a moot point. JBoss does work and it is free. I'm not too sure that you can actually export serious J2EE applications to it in hours or days, but I can well believe days or weeks.

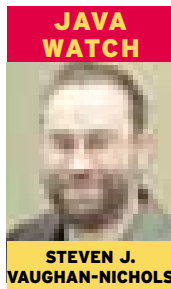
As for the company's long-term prospects, the JBoss Group makes its

money from training classes, support contracts and consulting, not selling the product. So far that seems to be working. But if you know your open-source history, you'll recall that's exactly how almost all the Linux companies started out, and most of them have now abandoned that approach and are charging licensing fees and hefty annual support fees like their proprietary brethren. It wouldn't surprise me a bit if in 2004, JBoss binaries and licenses were being priced in the same ballpark as Sun's or Oracle's application servers.

Still, even if JBoss sticks to its pricing guns and runs into financial trouble, or even goes out of business, you still have the application-server source code, so how much do you really have to lose? I don't think much at all.

So if you're comfortable with open source and running an application server that, strictly speaking, isn't J2EE compliant, or more specifically if your customer is OK with it, JBoss makes a fine application server. In particular, if you are concerned with total cost of ownership and return on investment—and who isn't these days?—JBoss' zero entry price might be just what you need. ■

Steven J. Vaughan-Nichols is editor of Practical Technology (www.practical-tech.com) and has worked as a programmer for NASA and the Dept. of Defense.



STEVEN J. VAUGHAN-NICHOLS

INSTALLATION BILL OF RIGHTS

Recently, Pacific Data Works LLC undertook an evaluation of more than 30 software development tools. These products continue to improve both in terms of quality of implementation and richness of feature selections.

However, where they all perform badly is the installation process.

It is clear that despite the number of software installation tools on the market, installation design is a discipline devoid of best practices—one that seems to pay no heed to principles espoused in the software design itself: safety, quality of implementation, and most especially, customer-orientation.

Please note that these comments apply strictly to Windows packages, because software installation on Linux and Unix—with the continued preference for fragile one-off shell scripts—is so poor as to defy useful comment. Red Hat's RPM packaging, like SVR4's original efforts in standardizing package installation, should be encouraged.

I propose an installation bill of rights—a document that sets forth the minimum standards to which installation procedures should adhere. These rights are:

ARTICLE I. No installation will do more than a) place files in a user-selected directory and b) set registry keys that

are limited to that specific package without prior explanation and permission from the customer.

ARTICLE II. All packages shall install an uninstall script that can completely remove all traces of the software. Customer permission must be obtained before any files containing customer-specific data are a) left behind or b) removed.

ARTICLE III. In situations where the installation can choose among several equal approaches, it must choose the path that least burdens the user system.

ARTICLE IV. To the extent possible, all installations shall enable automation via scripting.

ARTICLE V. Where users are offered several options during installation, the explanation of the options will be sufficient to make intelligent choices.

These rules are natural, intuitive and widely ignored. Let's look at the first rule. A common practice today is to place DLLs in the system directory. Since software can use DLLs wherever they're placed, application-specific DLLs should remain in the installation directory. Windows XP takes a first step at limiting DLLs in the system directories, but more needs to be done. A more egregious violation occurs in

packages that add desktop links to the desktop, place new hyperlinks under the "Favorites" tab of your browser, add unwanted icons to your system tray, or now run as services every time you reboot—all without asking or notifying you.

A common practice that violates rules 1 and 3 is the habit of some packages to put their home address at the head of the execution path without informing the user. This action

is pure laziness. Properly written installation scripts should check the directories on the existing execution path for other programs and DLLs with the same name and warn the user of any conflicts. The user can then decide which program should go first on the execution path. If no conflict

exists, then the program should place itself *last* in the execution path, on the theory that the user might have structured the path with a specific sequencing in mind. Today, no software I am aware of grants customers this courtesy.

The fourth rule solves an odious problem for enterprises. Anyone who has installed and configured Word, let us say, knows that several hundred possible settings exist. It should be possible to specify every option in a script so that installation can happen quickly and with perfect duplication. Various sam-

ple scripts (for default, minimum, full installations) should be included with every package.

Finally, the fifth rule is the one most commonly breached. Step through an installation wizard from InstallShield, Wise Systems or Zero G, and you eventually come to a dialog that asks you to select which options to install. If you click on one in the hope of getting an explanation, you rarely obtain any usable information.

Indeed, frequently, you're surprised by a query asking if you want to keep the option on CD or place it on the hard disk. Compounding the problem, installation wizards generally have no help system. Reference to installation manuals is the only remaining choice; but requiring recourse to a manual to compensate for inadequate on-screen information is a practice long abandoned in all forms of software—except installation processes.

There are many other bad practices not covered by this bill of rights—for example, Java installation scripts that default placing their binaries in the "Program Files" directory, even though Java cannot handle filenames with embedded spaces. But one document cannot proscribe every bad practice. However, I hope it will encourage the development of better practices. ■

Andrew Binstock is the principal analyst at Pacific Data Works LLC.



ANDREW BINSTOCK



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Fiorano's Tifosi

If JMS represents the pipes, Tifosi is the complete plumbing

BY ANDREW BINSTOCK

Vendors of Java Message Service (JMS) middleware, who once used to battle each other with great ferocity, have become a rather docile group of late, principally because JMS has become commoditized. As a result, the vendors compete on the basis of add-on functionality. For example, Sonic is pursuing Web services and EAI, while SpiritSoft continues its focus on pure messaging technology, and Talarian was swallowed up by TIBCO.

This leaves Fiorano Software Inc., which has developed an interesting layer of enterprise messaging infrastructure called Tifosi. (About the names: Fiorano is where Ferraris are built, while Tifosi is the name given to die-hard Ferrari fans.)

Tifosi is billed as "a fully distributed, peer-to-peer platform with a layered architecture." This is approximately correct. Tifosi is a server-based routing layer that manages messaging efficiently. Typically, deployments consist of client groups that are handled by a Tifosi Peer Server. All traffic within the group—think of it as a network segment—is handled by the peer server. These servers, in turn, speak to each other (the peer part of the story).

This arrangement enables easy scalability without performance degradation. In addition, two client end points can share messages without going through a central enterprise routing mechanism.

The whole network is watched over by Tifosi Enterprise Servers, which track what is going on between peer servers and respond when one goes down or when notification of an offline client arrives. As such, they perform failover and load balancing. In addition, they handle security issues (who can log on, who can receive certain data, and so forth), as well as standard housekeeping chores like scheduling, logging, exception-handling and the like.

Both the peer and enterprise servers are written entirely in Java and have been tested on the usual extensive gamut of platforms. The messaging system runs on Fiorano's high-speed JMS implementation, although the company is quick to point out that any JMS implementation could be used for the underlying plumbing.

In many ways, Tifosi is a software messaging layer that mirrors the hardware hubs and switches of traditional networks. This design targets sites that want to use JMS but need a turnkey sys-

tem to get enterprise-level services, security, reliability and performance. This is Tifosi's compelling story: If you think of JMS as the piping, Tifosi is the complete, installed plumbing system.

Fiorano (www.fiorano.com) markets the product for integration. To this end, it offers several interesting add-ons, including adapters for relational databases, flat files, enterprise applications and Web services. The company also supports other transports, such as messaging middleware like IBM's WebSphereMQ (formerly MQ Series) and TIBCO.

Tifosi also comfortably handles other kinds of interfaces not commonly thought of: FTP, POP3 and SMS. Special handlers can interact with XSLT and perform XML transformations. If you want to integrate stovepipes using a high-speed infrastructure without the bottleneck of hub-and-spoke EAI, Tifosi should be on your list of candidates.

I was particularly impressed with the bundled tools. Everything is laid out graphically. Drag and drop client nodes in real time to different servers. Need data transforms at a certain node? Do it graphically with tools that recognize, say, XML data streams, by pointing and clicking at the changes you need, then

use the mouse to route the data. Developers also can interact with Tifosi through C/C++, Visual Basic, Perl and Java, of course. Tifosi also works seamlessly with C# and .NET.

The management console is all graphical and similar to the type seen in large management packages like Computer Associates' Unicenter. Alarms and thresholds are identified, performance metrics are maintained, and—a rare feat—messages can be tracked individually during the entire course of their life. This is critical for network management and especially for debugging applications that interact directly with Tifosi.

Tifosi is a compelling story for enterprises that want to standardize on JMS and need robust enterprise features plus comprehensive integration with existing applications and protocols. I was impressed by Tifosi, even after learning that it's priced at US\$40,000 per enterprise server, \$10,000 per peer server—and a whopping \$10,000 per developer seat. ■

Andrew Binstock, a regular columnist for SD Times, is the principal analyst at Pacific Data Works LLC.



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MORE SUN AT JAVAONE?

Sun Microsystems Inc. again will play its customary role of shepherd as the technology world turns its attention to all things Java at next month's big JavaOne conference in San Francisco. Web services, improvements to the Java 2 platform and mobile computing with J2ME are the themes Sun will emphasize during the four-day event.

Sun, though, also will find itself in the unusual role of admitted active competitor to its partners-in-standard as it tries to build upon the toehold it has scratched out in the software tools and deployment markets.

For the first time in several years, Sun's road map for where it wants to go is becoming clear: Software vice president Jonathan Schwartz spelled out a vision to SD Times in January about tying all Sun's software to the Solaris operating system. In early April, that vision was expanded into something called Network Computing 03-Q2, which involves Sun's selling everything, from storage, servers and software to security for the enterprise.

Whether or not these initiatives prove successful, one thing is clear: Sun is stepping up to actively compete with IBM and others in the Java camp they have shared. Although Sun has long adhered to the mantra, "Cooperate on standards, compete on implementation," it seems Sun has been the only major Java vendor to play by that rule. IBM, BEA and others are repeatedly beating the Java Community Process to the punch with innovations to their proprietary platforms, then offering them up to the JCP as "standards" submissions after the fact.

So, what will Sun do at JavaOne?

Will the conference remain a neutral environment for the furtherance of the specifications, with vendors showing their competing implementations on the show floor, or will Sun use some of the developer sessions to explain its NC03-Q2 vision and give specifics on how developers, managers and systems administrators can best utilize the technology?

INDUSTRY WATCH



DAVID RUBINSTEIN

"Sun is in the midst of redefining themselves from a product standpoint and in terms of their relationship with Java," noted Greg Keller, director of modeling tools at Embarcadero Technologies Inc. "Software clearly is becoming more meaningful to Sun in 2003. But is their focus a day late and a dollar short?"

That is an important question. While Sun was walking the fine line between leading a Java community and competing against those same members of the community, others in the Java world had no qualms about grabbing the lion's share of market share. Has Sun's awakening come too late for it to make any real financial headway?

The answer, it would seem on the surface, is no. Sun has a huge installed base of boxes. Convincing customers that using the Sun SPARC chips in those boxes to improve performance of the applications in a system that was designed to work together from day one will be the hurdle to overcome.

Here's Jonathan Schwartz on Sun's initiative, direct from www.sun.com: "The Internet is one massive parallelizable problem. You have...millions of people who are maybe making a cell phone call, you know, into a data service because they want to check their

e-mail. You have tens of millions of people who want to go to a streaming media site to go look at a news broadcast. And as that happens, there are obviously things we want to do in the software to continue fueling that, but the opportunity is now for us to look at and reexamine our microprocessor design. You know, how we can turn our microprocessor into an engine to really go drive another level of performance in the overall systems. So what we're doing through chip multithreading, by really beginning to put, you know, four cores on a die, eight threads on the core, delivering 32 threads in a little, you know, microprocessor, will take performance to a level that I don't think people can even contemplate at this point."

To Embarcadero's Keller, NC03-Q2 begs the questions: "What's important to Sun? What's the end goal?" And, with so much emphasis being placed on Sun's initiatives, Keller said it's hard to define what Sun's affiliation with Java will be. "Are they restructuring it?" he wondered. "Are they rebranding it?"

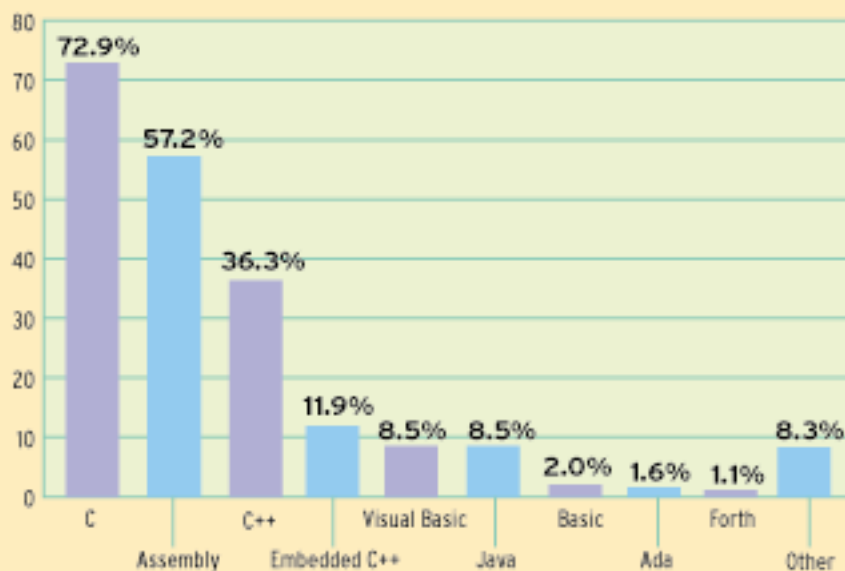
IBM's Scott Hebner, director of marketing for the WebSphere application server, echoed Keller's concerns. "[JavaOne] was all about Java; now it's more like a Sun user group. I think the Sun presence has become Sun specific more than Java specific."

If Sun's goal at JavaOne is to reinvigorate the Java community, which has taken some shots across its bow from Microsoft in the fight for the enterprise, the conference will continue to be relevant to a wide audience. But, if it becomes product-based, as Sun tries to beef up its bottom line, the new initiatives could spell trouble for the Java community. ■

David Rubinstein is executive editor of SD Times.

Which Language for Embedded Development?

DATA WATCH



Source: 2002-2003 Strategic Market Intelligence Program, Volume II: Embedded Operating Systems and Software Development Tools, Venture Development Corp. www.vdc-corp.com

No matter how you slice it, the venerable C language—initially developed in 1969-1973 by Brian Kernighan and Dennis Ritchie as the system implementation language for the Unix operating system—remains the top language for embedded developers, according to a recent survey from Venture Development Corp. When asked which programming languages they are currently using, nearly 3 out of 4 embedded developers reported using C. However, Assembly remains popular with more than half of developers, and C++ finds a respectable following. Newer languages, such as Visual Basic and Java, have only small roles to play in embedded development.

BUSINESS BRIEFS

Northface University, a new school for software development located in Salt Lake City, expects to close a US\$13 million round of private equity funding later this month. **Green Hill Partners**, a Boston-based investment firm, is leading the funding effort. The university, which will offer bachelor's and master's degrees in computer science, will emphasize architecture and engineering with a focus on modeling . . . **Savage Technologies**, which provides a Java platform for mobile phones, announced it has raised an additional US\$17.5 million, with investors including **RRE Ventures**, **Orange Ventures** and **Vodafone Ventures** taking part . . . **Microsoft Corp.** announced revenue for the third quarter ended March 31 was US\$7.84 billion, an increase of 8 percent over the same quarter a year ago. Net income was \$2.79 billion, an increase from the \$2.74 billion of a year ago. Server platform revenues increased 21 percent from last year, while business solutions revenue showed 96 percent growth . . . Third-quarter revenue and net income both grew at **Pervasive Software Inc.** Revenue was US\$10 million, up from \$9.4 million a year earlier, while net income was \$1.8 million, compared with \$1.7 million for the same quarter last year. ■

CALENDAR OF EVENTS

ASP.NET/Visual Studio Connections May 6-9
New Orleans
TECH CONFERENCES INC.
www.vsconnections.com/vs

Annual Developers Conference May 8-9
San Diego
ACUCORP INC.
www.acucorp.com/events/conference

MDA Implementers' Workshop May 12-15
Orlando, Fla.
OBJECT MANAGEMENT GROUP INC.
www.omg.org/news/meetings/MDA2003

STAR East May 12-16
Orlando, Fla.
SOFTWARE QUALITY ENGINEERING
www.sqe.com/stareast

GigaWorld IT Forum May 13-16
Phoenix
GIGA INFORMATION GROUP
www.gigaworldus.com

IDUG 2003 May 19-23
Las Vegas
INTERNATIONAL DB USERS GROUP
<http://conferences.idug.org>

TechEd June 1-6
Dallas
MICROSOFT CORP.
www.microsoft.com/usa/teched

Software Management & Applications of Software Measurement June 2-6
San Jose
SOFTWARE QUALITY ENGINEERING
www.sqe.com/sm

JavaOne June 10-13
San Francisco
SUN MICROSYSTEMS INC.
<http://java.sun.com/javaone>

For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar. Information is subject to change. Send news about upcoming events to events@bzmedia.com.

The Anatomy of a Complete Development Solution



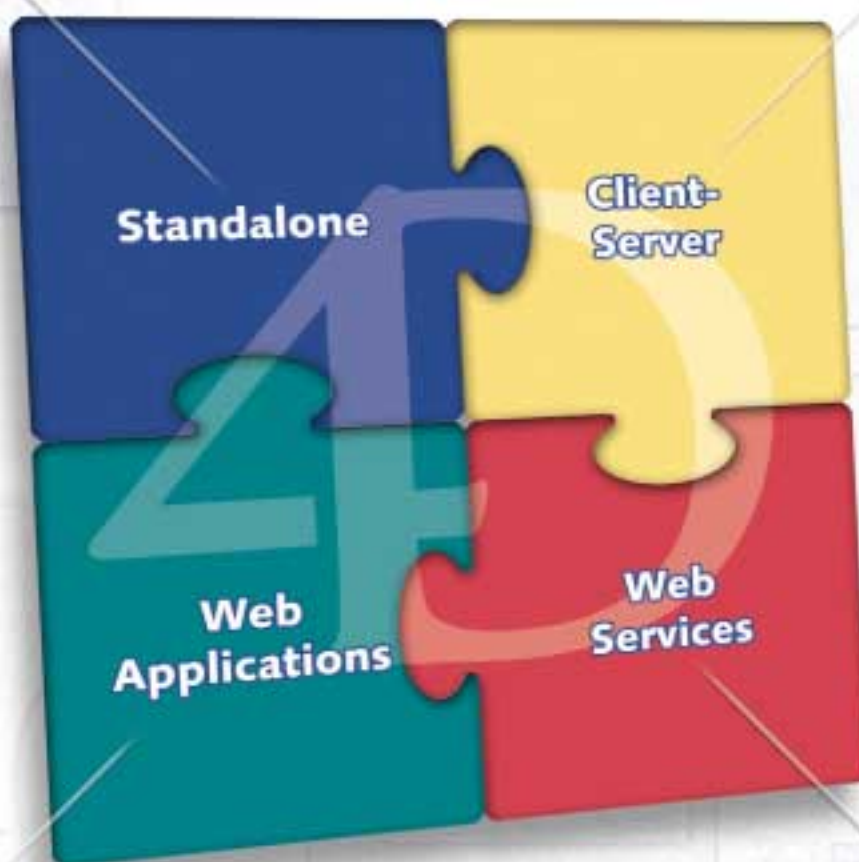
WHEN THE
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fig 1: Standalone

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fig 2: Client-Server



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fig 5: complete development solution

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- A. At the beginning
- B. In the middle
- C. On people who think testing should occur only at the end

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